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APRIL-JUNE, 1920

HYPOPHYSEAL DISORDERS WITH SPECIAL REFERENCE TO FROELICH'S SYNDROME (DYSTROPHIA ADIPOSOGENITALIS)

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The question of obesity or its congener, fat dystrophy, has not received much study or attention until quite recently. This was undoubtedly due to the lack of knowledge concerning the fundamental principles involved in the process of fat metabolism. Formerly, excessive accumulation of fat was usually regarded as the result of surcharging by overeating and underexercising, a normal metabolic function, a condition designated exogenous obesity. Since a better knowledge has been gained of the physiological function of the endocrine glands, the fact has become definitely established that the vast majority are due to a disturbance of function of certain of these glands, which form is designated endogenous obesity.

Although it has been observed from antiquity that eunuchs show changes in skeletal development with a type of fat distribution differing from the normal, it was not until Reverdin and Kocher (1882-1883) associated a form of obesity with the loss of function of the thyroid after complete extirpation, and Froelich in 1901 described a syndrome with obesity and genital hypoplasia associated with hypophyseal deficiency, that its full clinical significance was comprehended.

The discussion in this paper will be limited to the hypophyseal form, presenting a review and correlation of the most valuable literature on the subject to date.

The obesity, as well as the other features embraced in the clinical syndrome described by Froelich in 1901, was previously recognized and referred to as cerebral adiposity, and although lesions of the pituitary were demonstrated in some of the cases, no definite relation between the two was suspected.

As regards the earlier literature, Dr. Garrison of the Surgeon-General's Library, stated the following: "The only early reference to pituitary obesity known to me is the case given by Barnhard Mohr in Wochenschr. f.d. ges. Heilkunde, Berlin, 1840, VI, 565-571. This is the solitary case of any importance before the time of Froelich." This patient, a woman 47 years old, had an enlarged hypopysis cerebri, due to sarcoma causing cerebral pressure, especially upon the optic nerve and chiasm producing visual disturbance. In addition she had vertigo, periodical headaches, clumsy movements, mental deterioration, and finally, symptoms of apoplexy. Unusual obesity developed with extraordinarily large abdominal dimensions, especially in the transverse diameter. Autopsy showed a very large degenerated pituitary gland, an enormous deposit of subcutaneous fat, 3½ inches in thickness, with increase of fatty tissue in the heart, liver, and about the intestines.

Froelich's case was that of a boy fourteen years old, who had suffered for two years with headaches, vomiting, and a rapidly developing obesity with infantilism of the genitalia. To this picture Bartels gave the name dystrophia adiposogenitalis. The hypophyseal origin of the disease was not unanimously accepted until Cushing and Ashner by experimental investigation successfully demonstrated that obesity and genital hypoplasia developed in hypophysectomized animals, and further they definitely stated that adiposity was due to posterior lobe deficiency.

Cushing explains these phenomena as follows: Functional hyperplasia of the anterior lobe stimulates tissue growth, especially the skeletal, cuticular, and subcuticular tissues; conversely, anterior lobe insufficiency should inhibit skeletal growth and sexual development. Functional hyperplasia of the posterior lobe appears to be more concerned with tissue metabolism, for when rendered inactive by disease or compression, meta-

bolic processes are checked, and high tolerance is acquired for carbohydrates, which are promptly stored up as fat.

Recent investigation by Robertson on the influence of the anterior lobe of the pituitary upon growth through its growth controlling constituent, tethelin, emphasizes the fact that over-activity leads to gigantism or acromegaly, according to the age when the disease first manifests itself; and he asserts that under-activity, the result of pathological conditions partially or totally destroying the function of the anterior lobe, produces the clinical picture of adiposity, underdevelopment of the skin, bones and sexual organs, and secondary sexual characters.

Goetsch obtained very interesting results from pituitary feeding experiments upon rats. Feeding of the anterior lobe extract caused increased weight and greater and more vigorous body growth and development over the control. The period of complete sexual development is shortened by at least one-third of its normal time, and the sexual instincts are early awakened. The feeding of the posterior lobe extract does not stimulate growth nor the development of the sex glands.

Feeding experiments of endocrine diets on normal and hypophysectomized tadpoles by E. Smith show that the latter were retarded in growth on all diets except the glandular lobe of the hypophysis. The retardation of growth in hyophysectomized tadpoles was entirely prevented by a diet of anterior lobe, so that these tadpoles exceeded in size either normal tadpoles on a control diet or controls fed glandular lobe.

SYMPTOMOLOGY

The most striking symptom in hypophyseal dystrophy is obesity with a fairly definite type of fat distribution. Fat is accumulated chiefly about the hips, upper thighs, lower abdomen, and mons veneris. In addition, Biedl observed a remarkable deposition of fat in the omentum and retroperitoneal space. There is a type in which the fat distribution is more general, involving the mammae, shoulders and supra- and infra-clavicular areas; the hands and arms, legs and feet remain normal. This occurs as a familial type and presents a picture of obesity somewhat intermediate between thyroid deficiency and hypophyseal deficiency, and is probably due to a functional hypoplasia of the sex glands, secondary to hypopituitarism.

Integumental changes are also quite characteristic. The skin is remarkably delicate and white, sometimes described as alabaster. It is mostly cool to the touch, usually dry and sometimes exfoliates. The hands and feet are usually small. The fingers taper and the nutrition of the nails is normal, although

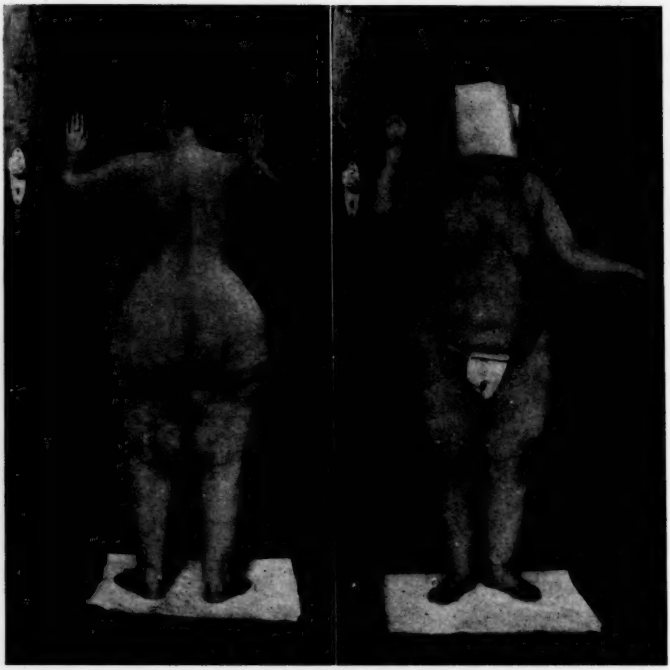

Fig 1 and Fig. 2—Illustrate case of dystrophy adiposogenitalis in which the fat is accumulated below the waist.

the crescents at the base are often absent. If the disease manifests itself before puberty the stature remains small; sexual development is delayed, which delay may result in permanent sexual infantilism.

Hewett, in a study of infantilism as related to pituitary disease, states that the symptoms may be roughly divided into two classes: Those due to mechanical effects of the tumor and those which seem to be due to an altered internal secretion. To

the former group belong the headache, vomiting and visual disturbances. The most characteristic of them, primary optic atrophy and unilateral or bilateral temporal hemianopsia, are due to direct pressure on the optic chiasm or nerves. To the latter group belong the sexual disturbances, (retarded sexual de-

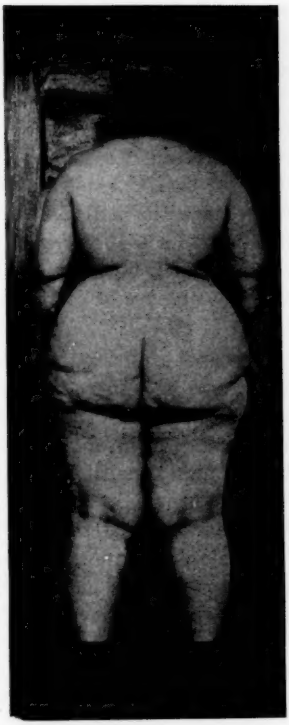

Fig. 3—Represents a type of case in which the fat distribution is more general.

velopment, cessation of menses, etc.) the obesity, the stunted growth, and possibly the occasional diabetes insipidus—these are due, in part at least, to diminished secretion of the anterior lobe of the gland. He concluded that infantilism associated with disease in or near the pituitary gland may resemble either the Brissaud or Lorain type.

The Brissaud type of infantilism in which the characteristics of infancy or early childhood are especially retained is described as follows: "Round, chubby face, lips projecting and plump, small nose, smooth face, fine clear skin, fine hair, eyebrows and eyelashes scant, eyes prominent, large round cheeks, infantile face and head, skeleton under-developed, neck short and chubby, body long and cylindrical, abdomen prominent, limbs round and large, layer of fat over the whole body, infantile pelvis, lumbar lordosis, rudimentary sexual organs, no hair except on head, high-pitched voice, thyroid small, mind slow, retardation of ossification, absence or retardation of second dentition."

The Lorain type, has been described as follows: "Small stature, delicately formed, slender skeleton, skin soft and pale, large shoulders, lower extremities long and slender, trunk relatively small, infantile sternum and pelvis, epiphyses normally united, no fat, abdomen normal, finely chiseled face, voice high, neck long, genital atrophy, absence of or slight secondary sexual characteristics."

In the female the menses are irregular or absent, and if the condition arises before puberty there are hypoplasia of the genitalia and deficient development of secondary sexual characters with absence or deficiency of hirci and crines pubis; the latter if present assume the angular outline or masculine tendency.

The male in early life shows the same disposition to sexual infantilism with absence or delayed secondary sex characters, such as the absence of hair on the face or body-hair, etc. The tendency to reversal of sex type is more marked in the male. In addition to the beardless face, horizontal crines pubis and delicate skin, other signs of feminism present are broad pelvis, moderate degree of genu valgum, rounded limbs, small feet and hands with tapering fingers and occasionally well developed breasts.

If the disease develops in adult life, retrogressive changes take place in the sexual organs with a corresponding diminution or loss of functions, with the same tendency of the features to revert to the opposite sex. Sugar tolerance is very much increased. The metabolic functions are below normal, which accounts for the subnormal body temperature, subnormal blood pressure, slow pulse and diminished carbon dioxide exchange. The basal metabolic rate as observed by Plummer is usually from

16 to 18 per cent below normal, and frequently 25 per cent or more.

Pardee describes as one of the first symptoms of pituitary disease, headache, which he calls "Pituitary" headache. It has three characteristics: (a) Its location; (b) Its duration and persistence; (c) Its relief under specific medication.

His conclusions are as follows: (1) Pituitary disturbances constitute a fairly common cause of headache; (2) Pituitary headache is located between the temples, deep in behind the eyes and is accompanied by dyspituitary signs; (3) Abnormality of the sella turcica is demonstrable in almost every case of pituitary disease; (4) Administration of the whole gland cures these headaches and the accompanying symptoms in a large percentage of cases, provided there is not a progressive neoplastic growth.

Cushing observed certain mental disturbances in hypopituitarism ranging from mild psychosis to extreme mental derangement, epilepsy, impairment of memory, lack of concentration and drowsiness. And Beverly Tucker ascribes certain forms of adolescent psychosis to hyposecretion.

Polyuria is a frequent symptom, and occasionally a true diabetes insipidus develops. The condition has been attributed to posterior lobe deficiency as a result of some lesion. Since the exhaustive studies of Houssay and Leschke this view is open to doubt. Houssay experimentally established a cerebral basal zone within which pricking generated polyuria. The posterior lobe of the pituitary may constitute a part of this zone, although he does not deem it probable. This zone is limited in front by the optic chiasma and behind by the penduncle protuberance.

Leschke pointed out the fact that while lesions of the hypophysis, such as trauma, sarcoma, metastatic carcinoma, tuberculosis, syphilis, etc. have been demonstrated in cases of diabetes insipidus, similar lesions in the midbrain, especially those involving the tuber cinereum may produce diabetes insipidus with the hypophysis intact. Removal of the gland itself does not produce polyuria; on the other hand a piqure in the tuber cinereum does produce polyuria. He regards the hypophyseal lesion as incidental, and if associated with diabetes insipidus, the latter condition is due to pressure or extension of the lesion into the tuber cinereum. Cases of diabetes insipidus have been

reported by Schüller and Christian, in which extensive pathological changes occurred in the bones of the skull. Dr. McLean and myself reported a case of cranial bone lesion in a girl with lues, who had severe diabetes insipidus and well marked dystrophy adiposogenitalis, but no abnormality of the sella turcica.

The degree of fat dystrophy varies according to the extent of the impairment of the function of the hypophysis. In this respect it is somewhat analagous to thyroid deficiency. When the functional impairment is slight a mild form develops (forme fruste) with very little genital hypoplasia or fat dystrophy, corresponding in degree to Kocher's thyreopenia. When the functional capacity is very much lowered Froelich's syndrome develops with its characteristic clinical picture. This phase corresponds to Gull's disease of the thyroid or the myxedematous syndrome.

Many of the cases advance into a state of cachexia. Most of the reports of this condition have appeared in the German literature and are described as hypophyseal cachexia. Simmonds published the reports of three cases of severe chronic cachexia ending fatally, in which the pathological findings showed total destruction of the hypophysis,—in two of the cases from neoplasm, in the other from an old embolus. In a later article he attributes cachexia to destruction of the anterior lobe and cites four cases in support of this view. The cachexia usually occurs in the fatal cases, although recoveries from the symptoms of cachexia under hypophyseal feeding have been reported.

INTERRELATION OF GLANDS

Many of the symptoms of dystrophy adiposogenitalis are dependent upon the close interrelationship between the function of the pituitary and other ductless glands. This feature is especially important in its relation to the sex glands. Clinically and experimentally it has been demonstrated that anterior lobe deficiency produces hypoplasia of the sex glands or the genital syndrome, and posterior lobe deficiency lowers the carbohydrate metabolism.

After primary change in the sex glands, as in pregnancy or after castration, there is a consequent hyperplasia and hypertrophy of the pituitary gland. The interesting contribution on this subject by Goetsch has been of great therapeutic value in the treatment of functional conditions of both glands.

In underfunction of the thyroid, as in cretinism or myxoedema, Eichorst observed changes very similar to those following loss of function of the gonads. At first the pituitary becomes larger and hyperaemic, hemorrhages are often observed, the glandular cells grow, the chromophile cells degenerate. Later, connective tissue changes take place with glandular cell atrophy; necrosis and cysts are formed in the connective tissue; the gland becomes smaller.

TREATMENT

The advancement along the lines of therapy in pituitary disease has kept pace with the progress made in the study of the physiology and symptomology. Treatment has become more rational, and, as is the case in disorders of other glands of internal secretion, organotherapy is most efficacious in the deficiency syndromes.

In hypopituitarism these include:

Anterior Lobe Deficiency—

1. Disturbance of growth (infantilism).
2. Development of obesity (dystrophia adiposogenitalis).
3. Genital hypoplasia (infantile genitalia with frigidity, sterility, and amenorrhea).
4. Temperature anomalies.
5. Cachexia Hypophysopriva.

Posterior Lobe Deficiency—

1. Hypotension.
2. Increased sugar tolerance.
3. Diminution of basal metabolism rate.

In addition there occur pressure symptoms—headache, vertigo, vomiting, etc.

Polyuria (diabetes insipidus), which was formerly attributed to posterior lobe deficiency or hypoactivity of the pars intermedia, is not included in the above classification of symptoms, owing to the results of the clinical and experimental studies of Houssay and Leschke mentioned previously.

Fortunately most of these indications, if they can be influenced by treatment, are controlled by the administration of the hormones of the thyroid, pituitary and gonads, either singly or combined. The thyroid is probably the most important. This gland has been called a sex gland because it is a powerful stimulant to the sex organs; and the presence of the thyroid hormone,

as well as the pituitary, is essential to normal function of the gonads. The thyroid is the greatest stimulator of metabolism known, acting, probably, by its effect in increasing muscle tonus through irritation of the automatic nervous system. The thyroid is also a stimulator of the pituitary function. It is thus easily conceivable how thyroid extract would favorably influence the majority of the groups of symptoms above mentioned. Through its influence on metabolism it has a tendency to improve the fat dystrophy, decrease sugar tolerance and increase the rate of basal metabolism. The changes in the metabolic rate will favorably influence the subnormal temperature, slow pulse, hypotension, dry skin, etc. Through its accelerating influence on the pituitary and sex glands it will augment the effect of pituitary and ovarian extract upon sexual hypoplasia and hypogonadism, as well as on infantilism of hypohyseal origin.

Anterior pituitary lobe has its greatest value in cases of dystrophy adiposogenitalis. In combination with thyroid it has the effect of redistributing the fat and increasing the functional activity of the sex glands, besides correcting some of the anomalies due to hypoplasia of the genitalia.

Most of these cases are not pure hypopituitarism; symptoms referably to thyroid and ovarian deficiency are frequently present. It is owing to this fact that better results are obtained by combining the respective hormones than by giving them singly.

In a study of a group of cases with hypophyseal fat dystrophy it has been the writer's experience that mere loss of weight is no adequate criterion as to the effect of treatment on the fat dystrophy. Patients under treatment must be systematically measured and measurements recorded. The most striking example was a woman whose hip circumference was reduced 7½ inches while under treatment, without her losing weight. By mensuration it was definitely established that the fat is actually redistributed in certain types of these patients. As a rule the measurements of circumference increase from the waist up, and decrease from the waist down. The dose employed in the treatment of these cases was 2½ grains of anterior pituitary lobe, (Parke, Davis & Co.), 2 or 3 times a day, and thyroid from one-half to one grain 2 or 3 times a day. Small doses of ovarian or testicular extract were added in some cases. To my mind the latter is of doubtful value.

Polyuria. The chief symptom of diabetes insipidus, which is occasionally associated with hypopituitarism, can best be controlled by the hypodermic administration of extract of the posterior lobe and infundibulin. In my personal experience it has

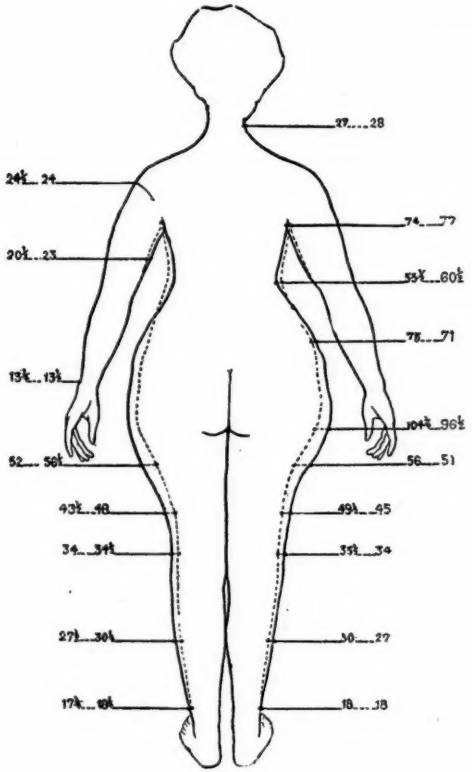

Fig. 4.—The dark continuous line and figures represent the body outline and circumference measurements before the administration of anterior pituitary lobe and thyroid gland. The dotted lines and figures represent the same 8 weeks later.

Note the increase in circumference from the waist up and decrease below the waist.

been found that 1 c.c. of pituitrin every day or two will absolutely control this annoying symptom, but the amelioration is only temporary. The remarkable effect of a single dose of 1 c.c.

pituitrin promptly reducing the 24 hour urine from 13000 c.c. to 1800 c.c. the next day led to the view that diabetes insipidus is due to posterior lobe deficiency; the oral administration has no effect.

The so-called pituitary headache is often promptly relieved by the administration of pituitary extract; Pardee recommends whole gland in doses of ½ to 2 grains three times a day. When the headache is relieved the dose is diminished. Timme in his article on a "New Pluriglandular Compensatory Syndrome" lays stress on the importance of recognizing these cases at their onset when the best results are obtainable by the early administration of pituitary substance. He considers pituitary gland almost a specific. The whole gland in doses of 2 to 3 grains, three times a day, is given in appropriate cases. This he supplements at times with pituitrin hypodermically, 0.5 to 1 c.c. per day or alternate days, for one or, at most, two weeks. With genital delay he occasionally feeds anterior pituitary lobe, which gives fair results. Atropine is recommended in those cases with vagotonic symptoms. Timme states that pituitary feeding in itself alone produces highly satisfactory improvement in almost every case; headache disappears, fatigability diminishes, blood pressure and blood sugar content increase.

The whole gland substance is indicated in cases with symptoms of both anterior and posterior lobe deficiency. With the use of thyroid and pituitary, de Schweinitz and How obtained good results in a case of pituitary disease with the onset of blindness; vision was restored. Other observers reported similar results. The feeding of pituitary substance exerts a favorable influence on the cachexia. Cases are reported in which the symptoms were entirely relieved.

Except for the fact that operations on the hypophysis are fraught with considerable danger, the mortality rate being 10-16 per cent, the indications for surgical treatment of disease of this gland would be practically comparable to those for diseases of the thyroid. The complete removal of the gland or any process which totally destroys the substance will lead to the condition known as cachexia hypophysopriva; operations, therefore are restricted largely to tumors and are resorted to more frequently in conditions associated with hyperfunction.

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THE RELATIONSHIP BETWEEN THYROID AND PARATHYROIDS

Swale Vincent and J. S. Arnason

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The present communication is in the nature of a recantation.

We shall make no attempt to give a complete historical account of the discussion of this subject. Such an account up to the year 1912 has been given by Vincent (10) and up to 1913 by Biedl (1).

The earlier investigators looked upon the parathyroids as embryonic thyroids and a belief in some kind of morophological and physiological relationship between the two glands has persisted up to the present time. But since the appearance of the papers of Vassale and Generali (7, 8, 9) the majority of authors have regarded the parathyroids as organs *sui generis*.

The experimental evidence for and against this view has been somewhat contradictory. Vincent and Jolly (11, 12) found that on microscopical examination of parathyroids left *in situ* after removal of the thyroid an alteration in structure had occurred. The parathyroid approximated in appearance to ordinary thyroid tissue. Their experiments were carried out on cats. Similar changes after thyroidectomy were found by Halpenny and Thompson (4) in the parathyroid of a dog. Halpenny (3) later reported a somewhat more doubtful instance occurring in a rabbit.

These results have not been generally accepted. Although the rabbit, among laboratory animals, lends itself in a special way (from anatomical considerations) to experiments bearing upon this problem, we can find in the literature very few detailed accounts of work directed towards this point carried out upon the animal in question.

It was in rabbits that Gley (2) rediscovered the external parathyroids, and it is undoubtedly true that it is largely to this author that we owe our present knowledge of the importance of these bodies. In his earlier papers on the subject, Gley sup-

ported the view that the parathyroids could (after removal of the thyroid) develop into thyroid. Later on he changed his view though he has maintained a belief in some kind of relationship between the two structures. Biedl (1) reports that, although he has noticed very considerable hypertrophy of parathyroids (in the rabbit) left behind after removal of the thyroid, yet he has never seen any structural changes in the former under these circumstances.

The present series of experiments has been carried out upon rabbits of different ages, some of them being full-grown, others only half-grown. The thyroid has been carefully extirpated under aseptic conditions, and with it, of course, both internal parathyroids, leaving behind one or both external glandules. The animals have been kept under the best possible conditions after the operation for periods varying from seven to eight hundred days, but of twenty-two animals which survived the operation for more than twenty-four hours, two have died within a few weeks of infections which are so common after thyroidectomy. The rest, to the number of twenty, have survived for periods varying from eighteen to eight hundred days, after which time the parathyroids were removed and examined microscopically. In some instances the animals were allowed to live after the second operation.

Our results are briefly as follows:

In none of the parathyroids have we found any distinct traces of vesicle formation. It is possible that there are changes of other kinds and of less significance in the glandules which had been left behind, but on this point we do not wish to be positive.

This series of experiments, then, does not lend support to the view that parathyroids left behind after thyroidectomy become converted into thyroid tissue. It is possible that the anatomical differences between rabbits on the one hand and cats and dogs on the other, involves also a difference in the potentiality of parathyroid to change into thyroid. Notwithstanding these considerations, and in spite of the fact that negative results are in such cases of less value than positive, we must confess that these experiments have led us to suspect the possibility that there were some errors of observation in the cases reported by Vincent and Jolly and Halpenny and Thompson. It is clear

that in dogs and cats where the parathyroids are in close proximity to the thyroid, there is a great danger of leaving behind a shred of thyroid tissue at the operation for thyroidectomy. This might subsequently be mistaken for transformed parathyroid. This suspicion is at any rate strong enough to suggest that further careful experiments upon animals other than rabbits ought to be carried out.

A few observations of another character bearing on the functions of the thyroid-parathyroid apparatus have been made in the course of these experiments. In the first place it may be desirable to call attention to the fact emphasized by Vincent and Jolly and other observers that after thyroidectomy, animals are particularly liable to various infective diseases, particularly of the respiratory tract. Again, stress must be laid upon the observation that none of our animals suffered from a condition which resembled in the remotest degree the disease known as myxoedema in the human subject. It is true that some of them suffered from falling out of hair and other skin diseases, but it is also true that many control animals suffered in the same kind of way. In none of the animals, young or old, was there any puffiness of the face or swelling of the subcutaneous tissue of any part of the body.

It is also important to note that we have not seen distinct tetany in any of the animals, and some have survived a removal of the remaining parathyroids for several weeks without symptoms. We are aware that tetany does sometimes occur in rabbits, but the precise conditions which determine its onset are by no means clear.

Noël Paton (5) has recently urged the functional distinctions between thyroid and parathyroids, and has suggested that in rabbits the explanations of a comparatively large proportion of survivals after complete thyro-parathyroidectomy is due to the fact that parathyroid tissue nearly always occurs in the thymus in these animals (Pepere, 6).

In our notes of the earlier experiments we find frequent record of hypertrophy of remaining parathyroids. But the measurements made in the later experiments did not lend support to the view that this hypertrophy is generally found. We thought it best, therefore, to omit all such statements, though

our impression is that in many cases there was distinct hypertrophy. This accords with the statement of Biedl *(vide supra)*.

It was suggested to us by Sir E. Sharpey Schafer that some experiments of the character described above should be carried out in dogs and cats. Such experiments can only be performed in selected animals, and we have had the misfortune to lose by accident two dogs which had lived for some time with only one parathyroid, the thyroid and three parathyroids having been removed.

We beg to acknowledge the valuable assistance of Mr. John Carmichael in all the experiments.

PROTOCOL OF EXPERIMENTS.

Exp. 1. Nov. 11th, 1916. Rabbit, female, full-grown. Thyroid and both internal parathyroids (as well as the left external body) removed. On Feb. 22nd (103 days) the animal was killed, and the right parathyroid examined. On microscopical examination it showed no structural changes.

Exp. 2. Nov. 17th, 1916. Rabbit, male, full-grown. Thyroid and both internal parathyroids removed, both external glandules left behind. The animal remained well till Jan. 6th (50 days), when the two external parathyroids were removed under aseptic conditions and the animal allowed to live till Jan. 17th, when it was killed. Tetany did not develop. The parathyroids removed on Jan. 6th showed no signs of vesicle formation. At the *post-mortem* no accessory bodies could be found.

Exp. 3. Nov. 18th, 1916. Rabbit, male, full-grown. Thyroid and both internal parathyroids removed, along with the right external parathyroid. The animal remained well until Jan. 18th (61 days), when the left external body was removed for microscopical examination. The animal was then allowed to live till Jan. 31st, when it was killed. The left glandule showed no structural changes. No symptoms of tetany developed after its removal, and on *post-mortem* examination, no accessory parathyroids could be found.

Exp. 4. Nov. 22nd, 1916. Rabbit, male, full-grown. Thyroid and both internal parathyroids removed. Both external bodies left behind. The animal remained well until Feb. 1st (71 days), when a second operation was performed and both the external parathyroids removed. No symptoms of tetany supervened and the rabbit was killed on Feb. 20th. Neither of the parathyroids showed any distinct structural changes.

Exp. 5. Nov. 23rd, 1916. Rabbit, female, full-grown. Thyroid and both internal parathyroids removed. Both external bodies left *in situ*. On Dec. 9th (16 days) the animal died of pneumonia. The external parathyroids showed no changes.

Exp. 6. Nov. 23rd, 1916. Rabbit, female, half-grown. The thyroid, both internal, and the right external parathyroids were removed. On Dec. 1st (8 days) the animal died of pneumonia. The external parathyroids of the left side had undergone no structural changes.

Exp. 7. Nov. 25th, 1916. Rabbit, male, full-grown. Thyroid with the two internal parathyroids was removed, leaving behind both external bodies. The animal remained in good health till Feb. 28th (95 days) when it was killed. No vesicular formation could be detected.

Exp. 8. Dec. 1st, 1916. Rabbit, male, full grown. Thyroid and internal parathyroids removed. Both external glandules left *in situ*.

Remained well till Mar. 27th (115 days). No sign of vesicle formation was found in the external glandules.

Exp. 9. Dec. 2nd, 1916. Rabbit, male, full-grown. Thyroid and internal parathyroids removed, the two external bodies left *in situ*. Remained well till Mar. 27th (114 days) when the two external parathyroids were removed. They showed no structural changes.

Exp. 10. Dec. 4th, 1916. Rabbit, male, full-grown. Thyroid and internal parathyroids removed. External glandules left *in situ*. On Feb. 28th (86 days) the animal was killed. No changes in external parathyroids.

Exp. 11. Dec. 7th, 1916. Rabbit, female, full-grown. Thyroid, both internal and left external parathyroids removed. On Feb. 20th (75 days) the rabbit was killed and the right external parathyroid examined. This showed no structural changes.

Exp. 12. Dec. 7th, 1916. Rabbit, male, full-grown. Thyroid and internal parathyroids removed, both external parathyroids left behind *in situ*. On Jan. 28th (52 days) the animal died of intercurrent disease. Parathyroids showed no structural changes.

Exp. 13. Dec. 18th, 1916. Rabbit, female, full-grown. Thyroid, internal parathyroids and left external body removed. Killed on Mar. 27th (99 days). No change in right external parathyroid.

Exp. 14. Dec. 18th, 1916. Rabbit, male, full-grown. Thyroid, both internal and right external parathyroids removed. Died on Mar. 2nd (74 days) of pneumonia. During the last few months the hair had been falling out, first in patches round the neck, then on one side of the body. The parathyroid left behind at the operation showed no structural change.

Exp. 15. Feb. 3rd, 1917. Rabbit, male, half-grown. Thyroid and internal parathyroids removed, both external glandules left behind *in situ*. Animal remained well till Mar. 26th (52 days) but did not increase in size or weight. The parathyroids did not show any changes.

Exp. 16. Feb. 10th, 1917. Rabbit, male, half-grown. Thyroid and internal parathyroids removed. Both external parathyroids left. Remained well till Mar. 26th (44 days) but did not increase in size or weight. The external parathyroids did not show any structural changes.

Exp. 17. Oct. 14th, 1917. White rabbit, female, young and in good condition. Wt. 1.5 K. Thyroid and internal parathyroids removed. Both external parathyroids left. The right glandule measured 7 mm. x 2.5 mm. and reached from the 10th to the 14th rings of the trachea. The left body was 7 mm. x 2.75 mm. and extended from the level of the 5th tracheal ring to that of the 10th.

On Dec. 23rd, 1919, the animal, whose weight had reached 2 K, was killed. The right parathyroid measured 5.5 mm. x 2 mm., the left 7.5 mm. x 2.5 mm. Both were found to be unchanged histologically.

Exp. 18. Oct. 30th, 1917. Rabbit, light brown, female, young. Wt. 2.1 K. Thyroid and internal parathyroids removed. Both external glands left behind. The right one measured 8 mm. x 3 mm. and lay opposite the 7th-11th rings of the trachea. The left measured 9 mm. x 3.5 mm. (Tracheal rings 9-14).

On Dec. 23rd, 1919, the animal was found to weigh 2.2 K and was in excellent condition. The right parathyroid now measured 8 x 3 mm. and the left was almost exactly the same size.

On examining the parathyroids histologically, we were astonished to find undoubtedly thyroid tissue in connection with the right glandule. But we are inclined to think that this really represented a true accessory thyroid which happened to be united to the external para-

thyroid. The left parathyroid was of normal microscopical appearance.

Exp. 19. Oct. 30th, 1919. Young white female rabbit weighing 1.6 K. The thyroid and both internal parathyroids removed. Both external bodies left behind. The left measured 7 x 2.5 mm. The right was not measured.

Dec. 23rd, 1919. The rabbit is normal and weighs 2.8 K. A shred of thyroid had been left behind. The left glandule measured 9 x 2.5 mm., the right 8 x 2.5 mm. The bodies were unaltered in structure.

Exp. 20. Dec. 23rd, 1917. Male rabbit, white, weighing 1.5 K. Thyroid, both internal parathyroids and the right external glandule removed, the left external parathyroid being left behind. The latter measured 8.3 mm. at one operation.

Dec. 23rd, 1919. The animal was killed. Wt. 1.8 K. Left gland now measured 15 x 4 mm. On microscopical examination appeared to consist of lymphoid tissue. (It is remotely possible that this body was not the parathyroid, but a lymph gland.)

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GYNECOMASTIA

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The term "gynecomastia," derived from the two Greek roots γυνή-feminine and μαστός-mamma, is applied to the occurrence in the male of a unilateral or bilateral mammary development resembling that of the female in its gross anatomical characteristics, with or without the production of milk.

This enlargement of the male mamma is not by any means a rarity, the phenomenon having been an object of recorded interest since the time of Aristotle (1), who reported having himself examined several individuals possessing the anomaly.

The surgical removal of the overdeveloped tissue was advocated at an early date, the procedure for which was apparently first described by Paulus Aegineta (2). Later the Persian physician, Ali-Ben-el-Abbas (3) and the Arabian, Abul-Casimir el Zahrâwi (4) reported the methods of operation in vogue in their respective countries, and Fabricius ab Aquapendente (5) developed a technique that savors much of modernity.

From the time of these early contributions to the subject down to the present medical literature contains many reports of the occurrence of abnormal enlargements of the male breast. Doubt, however, is thrown upon the validity of the interpretations of many of these cases as true gynecomastia, since there is often an evident failure to differentiate between the chronic or acute pathological conditions, such as carcinoma or breast abscesses, and the physiological mammary enlargement or *gynecomastia vera* unaccompanied by pathological stigmata.

In 1884-1885 Schuchardt (6) (7) (8) reviewed the literature concerned with new tissue formation in the male breast in three papers, two of which were devoted to the enlargements of the mammae due to obviously pathological conditions, while one detailed 272 cases which in all probability were authentic examples of true gynecomastia.

Gruber (9) who studied the subject intensively considered that true gynecomastia is a physiological phenomenon, and is

generally characterized by the non-painful and non-inflammatory character of the growth and the fact that it presents to the touch the characteristic lobulation of the female organ, unaccompanied by any of the usual clinical stigmata of pathological import.

Among the pathological causes of the enlargement of the male breast, carcinomata seem to occupy the center of the stage. But enchondromas, adenomas, fibromas, myomas, fibro-adenomas, lipomas, atheromas, cystic formations, tubercular growths, simple hypertrophy, calcification, and gummas have all been found at one time or another among those conditions leading to what Schuchardt (6) (7) calls the "Neubildung" of the male breast; while chronic induration and chronic mastitis can also be included if the term is taken in its widest sense.

In addition to the differentiation made between these and other pathological enlargements of the male mamma and gynecomastia there should be introduced a second group of overgrowths in which the enlargement consists simply of an additional deposition of fat or fibrous tissue in the mammary region. This latter type of increase was justly called by Gruber (9) adventitious or spurious gynecomastia.

Early studies of the gross and microscopic anatomical characteristics of the human breast were made by Gruber (9), Langer (10), Luschka (11), Momberger (12) and others. These seemed to show that there are no demonstrable differences in the manner of growth and development of the mamma of the two sexes up to the beginning of puberty. Even the post-partum enlargement as described in Halban's (13) diagram of mammary growth occurs irrespective of sex, as has been noted by Albers (14), Steifensand (15), de Sinèty (16), Opitz (17), Storch (18), Scanzoni (19) and others. Although the mode of development is apparently the same in the two sexes up to the commencement of the pubertal period, the degree of the enlargement is normally somewhat less in the male. At puberty, however, a marked quantitative differentiation appears to take place, and although the development and ramification of the glandular tissue occurs in both male and female, that of the former is normally of slight degree. Nevertheless, there does take place a progressive advancement in the development of the mammary elements of the male over the condition found in the infantile

stage, and the same type of change occurs which in the female leads to the production of the mammary volume characteristic of the sex. The main histological difference seems to lie in the apparent cessation of glandular growth just prior to the formation of the alveolar fundaments and a lessened fat and fibrous tissue infiltration.

On the other hand histological studies of Kölliker (20) seem to indicate that the growth of glandular tissue in the male with the formation of the end-bulbs is more extensive than is that of young nulliparous women of the same age. While this change is taking place the milk passages are ramifying by lateral buddings, as well as by multiple dichotomic terminal divisions, so that there are now found single canals connected with small groups of "Bläschen" of the second and third order. The ratio of the end-bulbs and the fundaments of the glandular "Läppchen" to the breast mass as a whole in young women and nulliparae is consequently very much less than in the male of the same age, while the glandular tissue development to and beyond the degree found in the male occurs in the female only during pregnancy and lactation. Although these two sets of observations have led to apparently conflicting conceptions of the differences of the glandular development occurring in the two sexes, a review of the observations on which the ideas were based would seem to indicate a greater degree of completeness in those of Kölliker (20). This latter investigator has clearly differentiated the histological structure and the developmental changes taking place in the female breast before, during and after childbirth, while the other workers are somewhat hazy in respects to these points. Accepting the histological studies of Kölliker (20) as being the more accurate, it is evident that this tissue presents similar morphological potentialities for assuming the function of milk-production as does the virginal mammary gland. Under certain, though rare, conditions this potential function apparently becomes actual, as will be later discussed. That it is the exception rather than the rule for this phenomenon to occur, the same being true for the enlargement of the male breast to a volume and texture resembling the female breast, may be due either to the presence in the organism of a chalone-producing tissue inhibiting the hyperplasia or to the absence of a specific hormone capable of bringing about such growth.

Turning now to the histological studies of the male breast in gynecomastia, it is seen that they have generally failed to take into account the glandular conditions found by Kölliker (20) in the normal male mamma during the second and third decennium as compared with those found in young nulliparous women. For while it is usually admitted that the manner of glandular ramification and end-bulb formation is the same in the gynecomast as it is in the female, it is frequently stated, with no added comparative evidence of a direct nature, that the degree of glandular tissue development in gynecomastia is not as great as is that in the female at puberty and during pregnancy, thus, obviously sliding over the differential histological picture obtaining during these two periods.

The most comprehensive summary of the microscopic conditions occurring in the abnormal physiological enlargement of the male mamma is given by Stieda (21), who considers that the term gynecomastia is only justified insofar as it is concerned with the outer form and volume increase of the male breast: that it should not include or express a histological uniformity or similarity of such a breast with the functioning female organ. The condition consists in a hyperplasia of the normal tissues of the male, primarily the connective tissue, which invades the surrounding fat tissue: the fat and the glandular tissue take some part in the hyperplasia it is true, but it is a minor one. Structures similar to acini are found but not to the same degree as in the normal female breast. In general this conception is supported by the histological findings of Scheiber (22), Ingleby (23), Galliet (24) and others, although the statements made comparing the findings with the female breast do not take into account the original structure as described by Kölliker (20). It is accordingly highly probable that the gynecomastic breast is but little if any different in its glandular development from the breast of the young virginal or nulliparous female and is accordingly potentially capable of assuming the elaboration of milk provided the appropriate stimulus be afforded.

The onset of this anomaly may take place apparently at any time after the organism commences the development of the sexual changes accompanying puberty, although Foot (25) reports a case of so-called pre-pubertal gynecomastia of the right breast that was painless, non-inflammatory and presented a dis-

tinctly lobulated structure in a boy of twelve, and Ingleby (23) and Moorehead (26) have recorded similar occurrences in boys of eleven and twelve years, all of whom presented no other signs of approaching puberty. Such a designation if tending to dissociate the phenomenon from the influence of pubertal stimuli is hardly justified since it is pretty generally accepted that the first faint stimuli heralding the approach of puberty are beginning to make themselves felt at this time, or even earlier (Heyn 27). However, it is during puberty that gynecomastia makes its appearance most frequently, Villeneuve (28), Bertherand (29), Gruber (9), Weber (3) and others citing many instances of the anomaly occurring at this period.

But the occurrence of the anomaly is not restricted to the pubertal period, since Curveillier (31), Galliet (24), L'Abbé (23) and Bryant (33) have all noted its development in men from 20 to 30 years of age. It is possible that these individuals were examples of a delayed sexual development (27). The same objection cannot be raised to the cases reported by Scheiber (22) and others in which the enlargement did not occur until well along into middle life nor to those individuals who had reached a ripe old age before the development of the gynecomastia as reported by Hall (34), Gorham (35) and Villeneuve (28). These cases are evidently definitely dissociated from direct connection with the changes taking place in the organism at puberty.

Since the incidence of gynecomastia in most cases is near the time of puberty, one is inclined to consider the phenomenon as in some way associated with an abnormality of the endocrine stimuli concerned with adolescence—particularly since it is during this period that the gross enlargement of the female mamma occurs. This latter phenomenon is generally agreed to be due to stimuli derived from glands of internal secretion. Such a conception, however, does not exclude the possibility that those cases occurring later than the adolescent period are also associated with abnormalities in gonad activities, the nature of which is unknown.

Gynecomastia may occur either unilaterally or bilaterally. No attempt has been made to compile the statistics relative to the locus of incidence, but it is interesting to note that out of forty-five cases Gruber (9) found that ten were unilateral, five being on the right side and five on the left.

The condition seems to be rarely hereditary in character, and those instances in which it has occurred in more than one generation may be considered as expected under the general law of probability. Savitsky (35) has reported a peasant gynecomast whose father, elder brother, and cousin were also similarly afflicted.

The familial occurrences of the phenomenon are also rare, Schaumann (20) finding but two instances where the anomaly occurred in more than one member of the family. This lack of definite, positive evidence that either hereditary or familial characteristics are concerned in gynecomastia allows the assumption that it is an untransmissible sport.

Whether actual milk production occurs in gynecomastia has been questioned. Stieda (21) and others seem to have failed to observe any consistent or valid evidence of this. Nevertheless, the literature contains many presumably authentic reports of instances of the secretion of milk and nourishment of the young by gynecomasts, Humboldt, Franklin (37), Schmetzer (38) and others giving excellent descriptions of personal observations of such cases.

The chemical analysis of "buck-milk," as the secretion of the male breast is usually called, shows that it can hardly be considered as a complete food for the growing infant. One analysis given by Schmetzer (38) in 1837, showed 1.23 per cent of fat, 3.58 per cent of alcoholic extractives, 1.50 per cent of water extractives and 1.18 per cent of insoluble materials. Nevertheless, there are instances reported of infants thriving on milk obtained from gynecomasts and it is accordingly within the bounds of probability that if the reported analyses had been derived from such specimens quite different results would have been obtained.

It is a generally accepted theory that for milk to be secreted there must be produced by or introduced into the organism a substance or substances stimulating the mammary glands to take up and carry on the function of lactation. Although it is well known that there are substances elaborated by endocrine glands common to both sexes that have been found to act as galactagogues, the source of the actual stimulus to lactation in the male is decidedly uncertain.

Gruber's (9) studies of the individuals coming under his observation and reported in the literature led him to consider that true gynecomastia is the result of a physiological process. He divided the gynecomasts into two groups depending upon whether or not there was a concurrent abnormality of the genitalia. Those whose genitalia appeared normal were classed as essential gynecomasts, while those with abnormal genitalia were considered as examples of acquired gynecomastia.

The anamnesis of the gynecomastic individuals coming to record gives validity to the conception that the condition may be acquired and associated with abnormalities of the genitalia. There is evident a strikingly frequent occurrence of defective or pathological states in these organs. Not every case of pathological or defective testicles exhibits a gynecomastia nor every case of the anomaly exhibits defective or pathological conditions of the genitalia, but there is found in many gynecomasts a simultaneous disturbance in function and structure of the procreative apparatus. Not only the testicles but also the penis seems to be incompletely developed in many cases. Schaumann (20) reports six cases of gynecomastia accompanied by immature genitalia. Malformations such as hypospadia and epispadia accompanied by atrophic testicles or penis are frequently noted. Definite mammary hypertrophy has been known to accompany testicular atrophy caused by orchitis following parotitis (Lereboullet 39); while Martin (40) was of the opinion that castration may bring about a similar result. It is not improbable, however, that the mammary enlargement in the latter cases is more in the nature of a spurious gynecomastia than of any other form. Laurent (41), Gorringe (42), Galliet (24), Weber (30) and Paulicky (43) all report similar cases in which there was atrophy, defect or pathological condition of the testicles accompanying the gynecomastia; and the evidence is sufficiently extensive to indicate the validity of Biedl's (44) summary conclusion that the anomaly is due in many instances to such conditions.

Turning for the moment to the so-called essential type of gynecomastia in which there is no evident abnormality of the genitalia, it is found that Coes (45), von Nelaton (47), Paulicky (43) and others have observed and reported such instances. Moreover, definite statements are frequently made that the sexual libido and potency in such individuals is entirely normal.

It is accordingly evident that gynecomastia may or may not be accompanied by a disturbance of the generative instincts and functions, from which it can be inferred that the stimulus to the anomaly formation does not necessarily lie in a perversion of any normal erotic hormone.

As might be expected, however, certain types of gynecomasts do present evidence of a lack of sexual desire and potency. A survey of the literature reveals that this expression of fundamental instinct was never developed at all or began to recede with the onset of the anomaly when accompanied or preceded by the appearance of defective genitalia. One case of sexual perversion is reported by Raggi (48) in which insanity was accompanied by a distinct mammary enlargement which receded to normal volume on recovery.

The mental trend and emotional reactions of the greater number of the gynecomasts seem to lie along those lines ordinarily reserved for the opposite sex. There are exceptions, but as a rule they give evidence of a preponderance of feminine traits where masculine would be expected. In many instances such an impression may have been enhanced in the observer by the lack of abundant hirsuties and the presence of a feminine voice. The degree to which this is true is indeterminable.

However, since the anomalous enlargement of the male breast is frequently accompanied by an atrophy, defect, or pathological condition of the male genitalia, and is usually associated with some deviation from the normal primary and secondary sexual characteristics of the male, the assumption is justified that the condition is a sequel of an abnormal endocrine trend in the organism. But two reports showing a possible direct associated endocrine disturbance accompanying gynecomastia, aside from those cases in which there are present abnormalities of the genitalia, have been found in the literature. The first one of Wagner (49) is, however, doubtful, due to the lack of general information existing at the time. Freeman (50) reports a hyperthyroidosis accompanied by enlargement of the mamma, but the existence of a causal relationship is hardly proven on the basis of this single observation. The results of the observations recorded up to the present may now be briefly summarized.

Gynecomastia is a physiological enlargement of the male breast to the volume and appearance of the normal female mam-

ma. It may be non-painful and non-inflammatory; to the touch it gives the feel of lobulation found in the female breast; it is not accompanied by pathological stigmata. It may arise at any time after the beginning of puberty or after the termination of the changes taking place at this period, but taken by and large, the greater number of cases have their incidence during the pubertal stage. It may occur as a one-sided enlargement, but possibly is more frequently bilateral. Heredity seems to play no part in its development. Apparently authentic reports give evidence that the gynecomastic breast may produce milk, which conclusion is supported by the histological studies of Kölliker. These seem to indicate a structural similarity of the development of the normal male mamma to the virginal or nulliparous breast. Finally, the anomaly may or may not be accompanied by atrophy, defect, or pathological condition of the genitalia.

Is there any experimental justification for the assumption that this anomaly is connected with endocrine dysharmony? Two facts seem to support the hypothesis that a disturbance of the normal internal secretory functions of the sex glands of the male is the chief contributing factor to its production. The first is that the onset of the phenomenon is usually so closely associated with the changes taking place in the primary and secondary sexual characteristics at puberty and the second is the frequent presence of defective genitalia in these individuals. This latter condition is associated with a tendency to femininity and lack of sexual desire and potency.

The normal pubertal enlargement of the female mammary glands is undoubtedly due to the elaboration of an internal secretion by the ovary. The experiments carried on by Halban (13), Kehrer (51), Hegar (52), Knauer (53) and others in which it was conclusively demonstrated that if the ovaries of young female animals be removed, normal mammary development fails to occur, while if the removed ovaries be again homologously implanted there follows normal development to functional capacity. This apparent relationship between the ovaries and the secondary sexual characteristics of the female is correlated in the male by the dependency, at least in part, of the usual development of the secondary sexual characteristics upon the presence of a certain amount of functioning testicular substance within the organism. The experiments of Foges (54)

with cocks and of Larcher (55) and Morgan (56) with hens indicate that the testicles produce an internal secretion concerned with the development of the male characteristics. Halban (13) has expressed the opinion that gynecomastia may be due to fundamental similarity in the nature of the internal secretory products of the ovaries and the testicles. Foges (57) criticises this hypothesis and the experiments of Aschner and Grigoriu (58) would tend to support the criticism. These latter investigators succeeded in producing a hyperplasia and so-called colostrum-secretion in the mammae of rabbits or guinea pigs by the injection of testicular extract, but similar results with extracts of spleen, muscle and liver indicate a lack of specificity of the reaction. If the normal internal secretion of the testicles is the same as that of the ovaries with reference to its relation to the development of the secondary sexual characteristics, why then are not all males possessed of mammae of volume equal to those of the female? It has been said that the anlagen of these characteristics, such as the beard, are predetermined and have but little if any initial relation to the sexual glands, Tandler (59) being one of the most strenuous opponents of the conception of a dependency of the secondary sexual characteristics upon the sexual glands. In the male the mammary anlagen are present to the same extent as in the female yet they fail to develop except in abnormal cases. On the other hand it is well known that boys may experience a slight tendency to swelling of the mammae at puberty, giving evidence of some sort of stimulus working at this time, affecting this tissue. And we also know that the castration of boys before puberty prevents the development of the male characteristics, but yet does not cause female tendencies to be produced.

It might appear at first sight as if the cases of acquired gynecomastia were such because of the removal of a substance produced by the testicles inhibiting the development of the heterologous secondary sexual characteristics such as the mamma. Steinach (60) seems to be of such opinion, in which he is apparently supported by Lipschütz (61). This opinion is based on a series of remarkable experiments. Young male rats and guinea pigs were castrated and ovaries from consanguinous animals were implanted and grew to the conditions normally found in the female. As a result of these transplantations the male

animals developed the physical and psychic characteristics of the normal female. The sexual appurtenances also, such as the mammae, became entirely feminine so that true, fat, rich milk was produced sufficient to nourish young and growing animals. From this it is evident that the implanted ovaries do not stimulate the growth and development of the male characteristics, but do give rise to the formation of the distinguishing female type, the penis remaining infantile in structure while the mammae evolve to the volume and function of the female type.

Similar experiments on the transplantation of testes into young castrated females resulted in non-development of the female characteristics and the evolution of the male type, in psychic, physical and sexual trend. Lipschütz (61) and Sand (62) observed that in such masculinized females the clitoris tends to develop into a penis. As previously stated, Steinach (60) considers the so-called "pubertal glands," that is, the internal secretory portion of the testes and ovaries, to be inhibitory to the development of the usual heterologous sex characteristics when implanted into the opposite sex, and to be specifically stimulative to the production of the sexual type normally accompanying the developing gland in the donor. Such an antagonism, however, is doubtful since Sand (63) has successfully transplanted a testicle and a consanguinal ovary into a young castrated male rat and obtained therefrom an experimental hermaphrodite. Hence by the simultaneous transplantation of male and female sexual glands into an infantile mammal the hypothesis of an inhibitory action of either on the other is not effectually substantiated. Moreover, the hypothesis of Halban (13) that the internal secretion of the sex glands is the same in both male and female would seem to be disproven by the fact of the development in the male of the female characteristics following implantation of consanguinal ovaries. If the secretion were identical for the two sexes there would be nothing to prevent the development of the usual female characteristics in the latter case. An interesting phase of these investigations is the influence of the heterologous sex gland secretion on the psychic reactions of the host, there being reported an evident adaptation of psychic sexual nature to that normally connected with the sex of the donor (64).

The experiments of Sand (62) showing the possibility of the simultaneous occurrence of both male and female characteristics in the same individual when both secretory testicular and ovarian substance are present are virtually experimental productions of the essential type of gynecomastia in animals. The studies of Steinach (60) (65) showing that in the absence of functioning endocrine testicular substance the presence of functioning endocrine ovarian substance causes the appearance of female sexual characteristics have a similar significance. Animal experimentation having thus demonstrated conclusively that it is possible to produce in males an enlargement of the mamma at puberty resembling that taking place in the female and that furthermore this development may continue to the point of milk production, the endocrine origin of the condition of gynecomastia is reasonably well established.

The source of the stimulus giving rise to the phenomenon of gynecomastia in man is in all probability connected with gonad hormone secretion. Since Steinach (60) has demonstrated that the internal secretion of the sexual glands is specific for the sex insofar as the production of the sexual characteristics is concerned, and since Sand (62) has shown the conception of an inhibitory function of the one on the expression of the function of the other is unsupported, it is possible to believe that in the gynecomasts there is present somewhere in the body in addition to testes an amount of functioning ovarian or ovary-like tissue sufficient to cause the abnormal development of the male mamma. This assumption would explain both the essential and the acquired types of the anomaly. For in the former cases it can easily be supposed that there is present a condition in which neither the testicular nor the ovarian stimulus is prepotent or insufficient so that both masculine and feminine characteristics are produced. In those cases where the anomaly arises in connection with an atrophy defect or pathological condition of the testes it is possible that an originally prepotent testicular secretion has been so weakened that the balance swings to the side of the ovarian stimulus, which, becoming prepotent, gives rise to the mammary enlargement as an expression of its function. Such a conception does not by any means imply acceptance of Steinach's (60) theory of the reciprocal inhibitory actions of the heterologous sex glands in the production of the characteristics

of the sex, this having been disproved by Sand (62). The conception is based on the facts demonstrated by the latter investigator that both secretions may be present and functioning in the same animal with the added, though gratuitous, assumption that in gynecomastia one or the other may be prepotent or that both may be equally potent and depending upon attendant circumstances give rise to either type of the phenomenon.

There has recently appeared a series of papers by Steinach (66) having to do in large part with an attempt to correlate homosexuality with gonadal endocrinology. One finding of particular interest in connection with the present discussion which tends to support the hypothesis previously proposed is the observation that the testicles of some five homosexuals showed the presence of certain cellular elements ordinarily foreign to the male glands and resembling in their structure and staining properties the cells of the corpus luteum, even to the presence of chromaphile material.

These observations, the results of the heterologous and homo-heterologous implantations of Sand, and the clinical reports of the literature, afford cumulative evidence validating the expansion of Novak's (67) expression that the phenomenon of gynecomastia is attributable to a diminution of testicular function into the conception that coincident with the lessened testicular function there exists a potent hormone-producing tissue resembling in its effects that of the female ovary and giving rise to the mammary enlargement characteristic of the sex.

Such being the present indications it remains for future investigations to show whether the production of the stimulus is due to a perversion of the hormone producing gonadal tissue of the male in the nature of its becoming similar to that of the female, or whether there is actually present in these individuals functioning ovarian endocrinal tissue.

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FRIGHT AS A CAUSE OF EPILEPSY AND HOW IT ACTS.

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That a fright may be the exciting cause of epilepsy, especially in the young, is a fact that cannot be too well impressed upon parents, teachers, and all who have the care of children. Most men who have given special attention to the malady believe that a predisposition to the disease exists in the cases of epilepsy that follow fright. In this they follow the teaching of Gowers, who wrote: "We must regard as the exciting cause of epilepsy, the condition or circumstances to which the first fit was apparently due. It may be again pointed out to prevent misconception, that these exciting causes cannot be regarded as the essential causes of the disease except in a very few cases. They would not have been effective had not a predisposition existed, due to inheritance or to causes which are generally beyond our recognition" (1). He also wrote: "Of all the immediate causes of epilepsy the most are psychical—fright, excitement, anxiety. Of these three forms of emotion, fright takes the first place. The relation of this cause to age, however, is very distinct. It is effective chiefly in early life, when emotion is so readily excited, and most powerful at the transition from childhood to adult life, while after middle life it is almost inactive" (2). And further on he states: "Predisposition usually exists. Hence in speaking of fright as a cause of epilepsy, it must be remembered (as already stated) that its effect is only that of the exciting spark" (3).

In this article, the writer reports a case, carefully investigated, in which a severe fright in a healthy boy, produced epilepsy, the first convulsion occurring two months after the fright. Moreover, he does not think his case unique, for Gowers himself, as above quoted, qualified his statement about predisposition by stating it "usually" exists, and that the exciting causes cannot be regarded as the essential cause of the disease "except in a very few cases." One of the twelve cases (Case 5) of epilepsy caused by fright reported by Paravicini in his valuable paper, "The Etiology of the Epileptic Psychosis" (4) apparently is of this nature since there was no bad heredity in the

case, and, insofar as predisposition to the disease went, was regarded by Paravicini as "immune."

In those cases in which fright causes epilepsy to arise in a previously sound nervous system, we may inquire whether there are any facts physiological, clinical, or pathological, that can illumine the genesis of this disease, facts that by the light they shed upon the pathway of our investigation help also to define the gaps that exist in our knowledge of the disease, and thus to emphasize the need of their investigation.

Research has shown that in idiopathic epilepsy the sympathetic nerve fibres are demonstrably diseased, that it is, in fact, a sympathicopathy. The demonstration that idiopathic epilepsy is characterized by objective signs—chronic vasoconstriction spots, demonstrable abnormalities of sympathetic nerve reactions—is an advance in our knowledge of the disease. It is a satisfaction that physical, objective phenomena that can be seen, measured, photographed, can now claim attention in place of the notions based on vagary (e. g., "the fit is the expression of the afflicted one's desire to return to its mother's womb") of which recent years have been so prolific. The demonstrable involvement of the sympathetic system is one of the facts that claim our consideration in an attempt to elucidate the genesis of the disease.

The next fact to claim consideration is that fear acts powerfully on the mechanisms of the body and that this action is by means of the sympathetic nerves. The physiologist, Cannon (5), teaches that impulses originated by emotion, flow over sympathetic nerves and cause an increase of the secretion of adrenin in the blood, accelerate the heart and dilate the pupils. The glycogen is mobilized and changed into sugar; the available energy of the skeletal muscles is increased by the extra adrenin produced; the coagulability of the blood is increased. All of these actions are produced by stimuli flowing over the sympathetic, and having for purpose the betterment of the individual's chances in the fight or flight, brought about by the original emotion. In other words, the bodily metabolism is profoundly influenced by terror, and an increased secretion of adrenin is demonstrably produced, which has itself a large share in the production of the demonstrable changes in the metabolism.

Another fact to claim consideration is that certain toxins produce convulsions. But adrenin, if toxic, is not in this class. Can its continued hypersecretion lead to a perverted metabolism in which a convulsant toxin is produced? This is one of the gaps in our knowledge that needs exploration. Suggestive experimentation, bearing upon the possibility of a hyperadreninaemia producing a convulsant is that noted in another connection, by Dr. Schaller of San Francisco. "He reported that in 1906, while working in the pathological laboratory of Dr. William Ophüls, he had undertaken some experiments to produce arteriosclerosis by repeated injections of adrenalin intravenously into the rabbit, following the experiments of Josué. By this method, striking specimens of arteriosclerosis were obtained. He had used doses of adrenalin maximal within lethal limits in order to produce maximum effects; and he had by this means frequently produced typical epileptic attacks in these rabbits. The attacks were manifested by periods of unconsciousness, by falling, tonic and clonic convulsions, dilation of the pupils, loss of sphincter control; in short, by typical epileptic attacks" (6). That adrenin can bring on attacks in human individuals subject to the malady has recently been demonstrated (7).

Another fact to bear in mind is that sudden anemia of the brain produces convulsions. Kussmaul and Tenner (8) proved "that sudden arterial anemia of the brain, as also faradization of the cervical sympathetic nerve, which determines permanent spasms of the blood vessels gives rise to epileptic fits." In epileptics, reflex vasoconstriction of the peripheral vessels can be frequently seen (as in the arm) to be more intense and to last minutes longer than that evokable in normal individuals. Is it not conceivable that this intensity of vasoconstriction as witnessed in the peripheral vessels of epileptics may also affect the cerebral circulation and with convulsive results?

The facts that we have under consideration we shall briefly review in their possible relation with the genesis of cases of epilepsy that have for sole cause a severe fright, first relating the history of a case coming within this category.

H. O., Swedish-American, male, aged 21 years. (Referred by Dr. F. W. McVey of Boston.) No mental or nervous diseases, alcoholism, or tuberculosis on the father's or mother's side. Both parents healthy. Five brothers, all healthy. In childhood the patient had no infectious disease except measles at eight years of age. When seven years old he suffered a severe fright. Three boys took him into the woods

near by his home. One held him while another held open his mouth, while the third boy poured a nasty fluid down his throat. He returned home very pale. For two months afterward he cried out nightly in his sleep. He was afraid all the time, showed constant pallor, and had to be coaxed daily to go to school, fearing the boys who had maltreated him. After two months had passed, one morning when ready to go to school, he came back into the kitchen very pale; he looked up towards the ceiling and became rigid, "like a stick" as his mother said, and she carried him to bed. This was his first convulsion. For a while after this, every three weeks he would have several convulsions near together. Then a period of five months elapsed without one; this was followed by a period in which two or three light attacks occurred every day for awhile. Since then, for a period of thirteen years, the convulsions have averaged two a month. An impediment of speech, slight stuttering, came on after his first attack and remained permanently.

We have now to consider, in the light of known extraneous facts, the genesis of epilepsy caused by a severe fright in a previously sound nervous system. As shown by the experiments of Cannon, fright influences the bodily mechanism through stimuli passing over the sympathetic nerves. The secretion of adrenin is increased, with the resultant effects previously mentioned. In our case, the sudden onset of quite constant pallor, showed that the sympathetic nerves were hyper-active in discharging stimuli which produced the evident peripheral vasoconstriction. Fear was constantly in the mind of the boy, evidenced by the night terrors, and the coaxing of the mother necessary to get him to go to school after the fright. Thus, while this fear lasted, a period of two months, there was a hypertonia of the sympathetic nerves manifested externally by the almost constant pallor. The period between the causative fright and the onset of convulsions (in cases of epilepsy caused by fright) is termed by Paravicini the intervalic period. During the intervalic period in the case here reported there was manifested a hypertonia of the sympathetic system—a fact not surprising in the light of Cannon's experiments. The writer has observed carefully several cases of incipient idiopathic epilepsy, in the etiology of which, however, fright played no part, and in them there was a hypertonia of sympathetic nerves present, demonstrated by neurological tests. Hence it is evident that hypertonia of sympathetic nerves is connected with the incipient or preconvulsive stadium of idiopathic epilepsy. It is the only abnormal physical condition that we can feel sure was present in the intervalic period of the case here reported.

Is sympathetic hypertonia in itself sufficient to cause con-

vulsions? That might depend on the sympathetic fibres involved in the hypertonia. Thus Kussmaul and Tenner's experiment of producing epileptic fits by "faradizing the cervical sympathetic nerve which determines permanent spasms of the blood vessels" is nothing but the artificial production of a hypertonia in the sympathetics innervating the blood vessels of a brain area; and anyone who has seen the intense and long lasting vasoconstriction evokable in some skin area of a chronic epileptic cannot but reflect, in the light of Kussmaul and Tenner's experiment, on the result of a similar vasoconstriction automatically produced in the epileptic's brain vessels. (That the brain, encased as it is in the unyielding cranium, cannot undergo vasoconstriction en masse is of course recognized. That differential distribution of the blood within the brain may, however, give results such as those herein postulated must also be recognized.)

The length of the intervalic period, two months in the case here reported, suggests the probability of some other factor in the production of the convulsions besides the hypertonia of sympathetic fibres, and thus we are led to inquire if the hyperadreninaemia present during that time could so vitiate metabolism that substances were formed which acted as irritants to the cerebral cortex. The periodicity of the convulsions in epilepsy suggests such a toxin formation. Very little, however, appears to be known of the metabolism of epilepsy, and a line of investigation that has enlarged our knowledge of diabetes mellitus and diseases of the thyroid, is conspicuous for its utter neglect in case of the epileptic. All that can be said, therefore, about the production of nerve-irritating substances by the hyperadreninaemia (caused by the hypertonia of the sympathetics lasting for a considerable period) is that such a production is possible.

Bringing these various facts, pathological, clinical, and physiological, into closer relation with our case report, we find that H. O., a healthy boy with no predisposition to epilepsy (no damaged nervous system from bad heredity or infectious diseases) suffered a severe fright (its severity manifested by night terrors for two months) which caused a hypertonicity of the sympathetic nerves (manifested by the marked and constant pallor of sudden onset). This was supposedly accompanied by a hyperadreninaemia—the normal accompaniment of emotional hypertonia of the sympathetics (Cannon's experiments). After

two months of this condition, convulsions occurred and have recurred for fourteen years. Physical examination now shows a diseased condition of the sympathetic nerves, manifested by chronic vasoconstriction spots and abnormal vasoconstriction reflexes, phenomena that investigations have shown to be characteristic of idiopathic epilepsy. We have therefore three outstanding facts: 1, a sound nervous system; 2, a severe fright, causing a hypertonia of the sympathetic nerves with a resultant hyperadreninaemia lasting for two months; 3, sixteen years after the onset of convulsions, a diseased sympathetic system.

While it may be assumed that in the intervalic period there was a hypertonia of the sympathetic system, the relation of this hypertonia with the outbreak of convulsions is as yet obscure. We do not yet know the topography of the sympathetic fibres in the brain. The fact that emotion is the cause of this hypertonia indicates brain connections with sympathetic fibres. Waiving the possibility of stimuli reaching the motor cortex from the hypertonic sympathetic fibres, are there other considerations that may aid in explaining the onset of convulsions in this case?

It is generally admitted that the convulsions in epilepsy originate in the cortex. The experiments of Tsiminakis (9) indicate that the cortical cells, especially the motor cells, of the normal brain react to anemia differently than do those of the epileptic. This investigator compressed the carotids for a minute in 30 normal subjects. Outside of a momentary unconsciousness there was no reaction of brain cells. He compressed the carotids likewise in 116 patients, mostly epileptics. The epileptics became unconscious more quickly than the others, at latest in thirty seconds, and the onset of unconsciousness was quickly followed by epileptiform convulsions, struggling or kicking movements for ten to forty seconds; later these were followed by the characteristic stare of epileptic somnambulence ("Absenz"). These experiments indicate two things: a greater irritability of the motor cells in chronic epilepsy, and the influence of anemia in provoking an outburst of stimuli from such over-irritable motor cells in the cortex, causing convulsions.

This leads to the question: What in the intervalic period might cause a hyperirritability of the motor cells in the cortex, the condition which is apparently present in chronic epilepsy,

the condition in which a momentary anemia so readily leads to convulsions? It may be that the hypertonia of the sympathetics caused a pallor of the motor cortex as it caused that visible in the skin during the intervalic period and thus led to the production of acid metabolites resulting in hyperirritability of the motor cells. Or the hyperirritability may have been caused by an irritant in the blood, a product of perverted metabolism due to the hyper-adreninaemia of the intervalic period. These are mere hypotheses used as stop-gaps in our chain of facts to explain the onset of the convulsions in our case of epilepsy. Once convulsions occur, their recurrence is facile, as Gowers has remarked.

If the convulsions are caused by spastic constriction of cortical vessels, and if the sympathetic fibres originate in the cortex [facts that point to such an origin have been described elsewhere (10)] the progressive character of idiopathic epilepsy is explainable, together with the cortical gliosis that accompanies the disease. For the recurrent spastic contraction of the cortical arterioles could have for results, the cortical gliosis that is found accompanying the disease, and the descending degeneration of sympathetic fibres that Echeverria found and described (11). The physical signs of chronic vasoconstriction spots, and abnormal sympathetic nerve reactions demonstrated by neurological testing, have previously been shown to go with this disease so constantly as to determine idiopathic epilepsy to be a sympathicopathy, a diseased condition of sympathetic neurones (12).

SUMMARY

Eliminating all theory from consideration (it has been used only in an endeavor to account for some of the facts) the facts in the genesis of our case are these: 1, a sound nervous system; 2, a severe fright; 3, a hypertonia of the sympathetic nerves for two months, a direct result of the fright; 4, outburst of convulsions at end of two months and their recurrence during sixteen years; 5, the present status, a chronic diseased condition of the sympathetic nerves, manifested by chronic vasoconstriction spots and abnormal vasomotor reactions characteristic of idiopathic epilepsy. It is concluded that severe fright can produce idiopathic epilepsy in a child without a predisposition to the disease. It acts by causing a hypertonia of the sympathetic nerves. A

hypertonia of sympathetic nerves is the evident beginning of the disease in the case reported.

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A CASE OF COMPLETE AMENORRHEA WITH FULMINATING SYMPTOMS: SURGICAL DEMONSTRATION OF OVARIAN ETIOLOGY †

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Most of the evidence as to the relationship of the ovaries to menstruation has been of negative character. By this I mean that we are better acquainted with the effects of destroying ovarian function than we are cognizant of the results of restoring activity to a functionless ovary. Being presented with an apparently unique case, any therapeusis undertaken must necessarily be an experiment.

The literature revealed no case similar to the one herein reported.*

In the midst of an attack the patient's condition presents a striking picture. She is seen at one time prostrated and the next moment half raised on the edge of a lounge giving the appearance of one with a wild, uncontrollable mentality, with an extremely flushed appearance and an almost suffocating cyanosis and widened palpebral fissures. Besides this her arms may be covered with blood from unsuccessful attempts to establish a flow of blood, unsuccessful because repeated venesection month after month had destroyed the continuity of the superficial veins of her arms.

Case No. 115. Chief complaint, complete amenorrhea. Age, 30; single; school-teacher. The family history was negative as to similar conditions, tuberculosis and cancer. Tonsillectomy was performed about 1909, appendectomy in 1915.

Menstrual history: The first menstruation was in 1903 at the age of twelve. For some reason not now known, the right breast was removed in 1905, the left one was removed in 1906. After the removal of the first breast, periodic attacks of numbness and unconsciousness ensued with complete amenorrhea for two and one-half years. Later there were some scanty menstruations. As time went on conditions became much worse. The menstruations became vicarious. Nose-bleeds were the chief source of the escape of blood.

In 1915 the patient underwent an operation for the ingrafting of a sheep's breast. This was soon absorbed, as could be expected, without

† Read at the meeting of the Association for the Study of Internal Secretions, New Orleans, April 26, 1920.

*"We are unable to find any literature dealing with amenorrhea following amputation of the breasts in a young woman."—Robt. E. Noble, Brig. Gen., Med. Dept., Librarian S. G. O.

any definite results. Following this, the patient consulted many physicians, but the only relief obtainable was artificial bleeding either from curettments or from venesection. There was a complicating leukorrhea which was first noticed by the patient on the day following a curettment, in Feb., 1919.

Prior to coming here the patient had not had a natural menstruation, unless started by a venesection of about a pint of blood or by a curettment, during six months. During the next six weeks, while the patient was under our observation, she had to be bled twice to relieve conditions of extreme cyanosis associated with unconsciousness and delirium. These symptoms entirely disappeared as soon as the first twelve ounces of blood were removed.

Physical examination: July 22, 1919; height 5 feet 2 inches; weight about 105 pounds; pupils react to light; mouth, numerous crowns, bridgework, pyorrhea and root abscesses; tonsils, no visible portions remaining; no superficial lymph nodes; thyroid, not enlarged; breasts, one-half of the right breast and one-fourth of the left breast were still present; heart, lungs, liver, spleen and other abdominal organs, negative; uterus, very hard; cervix, lacerated; vagina, small, leukorrhea; rectum, spine, joints, patellar reflexes, extremities and skin, negative.

Blood pressure 118, systolic and 78, diastolic; pulse 90; Wassermann test, negative. Vaginal smear was positive for Neisser infection. Urine analysis, sp. g., 1.026, acid, no albumin, no sugar. In a second test albumin and pus were present.

Blood count: Erythrocytes,
July 23, 1919; 10,000,000 per c.mm.
July 24, 1919; 12,000,000 per c.mm.
July 26, 1919; 5,600,000 per c.mm. (after venesection).

Operation: Aug. 1, 1919. Ether anesthesia. Low mid-line incision. Findings: Ovaries, normal in size and position; ovarian veins tortuous and congested; uterus, normal position; fundus, about four cm. in major diameter, and marked by several areas of hyperemia and of ischemia.

The operation comprised the incision of the peritoneum behind the ovarian vessels on each side, sectioning of the sympathetic nerves to the ovaries and the removal of the adventitia from the major ovarian vessels. One vein which became lacerated was ligated. The abdominal wound was closed.

Results: Normal menstruation, lasting for five days, began on the day following the operation. The next menstrual period was skipped but without any of the nervous and vascular symptoms as before. Subsequently, the menstruations became regular and normal, as follows:
Oct. 28-Nov. 1.
Nov. 22-28.
Dec. 18-24.
Jan. 17-21.

On March 6, 1920, the patient stated in a letter that she was "feeling fine" and had gained twenty-five pounds.

DISCUSSION

Prior to deciding upon a therapeutic plan, this case offered many perplexities. As the patient was demonstrably suffering from focal infections, it was considered advisable, before trying other means, to remove the foci. The patient, however, preferred to submit to an experimental abdominal operation rather than to lose her infected teeth. It was thought that the ovarian

nerves and perhaps the blood-vessels also, directly or indirectly, were being stimulated by the toxins of infection and thereby altering the circulation and hence the functions of the ovaries. With this as a hypothesis, the operation was undertaken with a view to eliminating the nervous and vascular control of the ovaries.

SUMMARY

A case is reported in which a patient suffered from amenorrhea for about fourteen years following the surgical removal of parts of both breasts, for reasons not now known. Sectioning of the sympathetic nerves to the ovaries and resection of the adventitia of the ovarian vessels was followed by the establishment of normal menstruation.

(PATHOLOGY OF THE SYMPATHETIC) PATOLOGIA DEL SIMPATICO, by Professors P. Castellino and N. Pende. F. Vallardi, Milan, Italy, 1915.

That the internal secretions will ultimately be proved to play an important role in the genesis of numerous disorders in addition to the well recognized endocrinopathies is a prophecy frequently and safely offered. The data justifying such a statement are widely scattered and confused. Castellino and Pende's widely quoted book is of interest to the endocrinologist primarily as an attempt to bring together these data and to organize them systematically. The attempt involves a considerable amount of theorizing which will be valued more or less in accordance with the temperament of the individual reader.

The book—of some 500 pages—is divided into two sections. In the first the anatomy, physiology and pathology of the endocrine-sympathetic system is discussed at length. The point is emphasized that the relations between them are so intimate that the two components can most profitably be treated together. In the concluding chapter of this section a critique is offered on the theories of vagotonia and sympatheticotonia as expounded by Eppinger and Hess. The conception is regarded as of restricted practical significance.

The second part of the volume begins with a chapter on the cyanoses and erythroses of the skin. The habitual acrocyanosis is related to hypothyroidism, as are chillblains and symmetrical gangrene. Chronic acroasphyxia and Raynaud's disease involve also "hyperadrenalism." Other conditions considered are acroerythrosis erythromelalgia, erythrophobia and acroerythrosis indolora. Quincke's disease is regarded as related to thyroid dystrophy and gonad alteration. Similarly the trophoedema of Meige may be allied to dysthyroidism, as demonstrated by forms passing into myxedema. Next the lipodystrophies are taken up, with a detailed description of Dercum's disease, which is considered as a pluriglandular syndrome with prevalence of hypophyseal symptoms. Then adiposis analgesica and lipomatosis symmetrica are treated with adenolipomatosis symmetrica and neurofibromatosis of V. Reklinghausen.

Scleroderma, sclerodactylia and hemiatrophy of the face are discussed in a chapter with hemihypertrophy, congenital and acquired, considered as trophoneuroses. As regards atrophy of the skin (idiopathic) hypoadrenalism is claimed to be a causal factor.

Trophoneurotic gangrene of the skin is treated in all its known varieties, in connection with Raynaud's disease. A very detailed chapter follows on skin dystrophies, with special emphasis on the adrenal as related to the pigmentary anomalies.

Hypertrichosis is regarded as of pluriglandular origin, but always mediated by the sympathetic system.

After a discussion of the causal action of various endocrine glands on sympatheticopathies of the locomotor apparatus (Dupuytren's disease, hydroartrosis intermittens of Moore. Paget's disease, osteomalacia and several angiomyopathies), hemicrania is considered as a cervical sympathetic disorder.

A short discussion of negative tenor is added on the possible connection between epilepsy and glaucoma and the sympathetic. The sympathetic conditions are not considered as causal; in regard to the glaucoma the operation on the cervical sympathetic did not lead to any encouraging result.

A long and detailed chapter on the heart follows; in this Castellino claims that the thyroid is cardio-exciting while the gonads are cardio-depressor. Other topics treated are asthma, laryngospasm, hysterical hemophthysis, coeliac and gastro-intestinal neuroses, urogenital sympathetic neuroses, chlorosis, Basedow's syndrome as an endocrine-sympathetic dystrophy and two pluriglandular syndromes.

The book as a whole does not lend itself to adequate analysis in a review of restricted scope. For many interesting details the original should be consulted.

—G. VERCELLINI.

(THE PUBERTY GLAND) DIE PUBERTAETS-DRUESE UND IHRE WIRKUNGEN, by A. Lipschütz. Bern, 1919, pp. 456.

Lipschütz's book is a masterpiece of artistic and lucid scientific exposition. It will rank not only as the best on the particular subject treated, but is also one of the best in general medical literature. The illustrations are good, many even splendid. Much of the book is devoted to the experiments of Steinach, but the author details also his own work. He was the first to show that castration of female animals, followed by transplantation of a testicle, leads to development of the clitoris to an organ resembling a penis. The theory that sex is already determined in the ovum is discussed at length and finally rejected. New theories on hermaphroditism and homosexuality are given. Lack of space renders impossible an adequate discussion of them. They are well deserving of careful attention in the original.

The literature is not very completely reviewed. The author does not seem to know, for example, of Blair Bell's interesting book "The Sex-gland." This is regrettable for there are some contradictions between the two authors; it would have been interesting to have them discussed by Lipschütz.

—J. KOOPMAN.

(A THEORY OF CANCER) LA DYSCYTOGENESE HYPOCYTOPOIETIQUE DYSEUTROPHIQUE OU CANCER. Naamé, Maloine et Fils. Paris, 1919, pp. 43.

Dr. Naamé offers a theory of the etiology of cancer. The thesis is based on a review of the literature and on personal therapeutic observations. It is largely a speculative development of the conception that "Cancer is a dyscytogenesis with local hypocytopoiesis and glandular dyseutrophy." By this verbalistic feat the author would seem to have formulated a conception with which many would agree. By "dyseutrophy" apparently is meant functional imbalance which Naamé believes can be more or less constantly corrected by judicious organotherapy. He reports the successful treatment of uterine cancer by "mammo-hypophyseal and thyro-mammary extracts" and of breast cancer by "thyro-ovarian" extract, and, more recently, a few other successes along similar lines. In view of the dubious history both of organotherapy and of "cancer cures" only an overwhelming mass of detailed evidence would carry conviction of the validity of the method proposed.

—R. G. H.

(GOITRE IN THE WHITE RAT) DER KROPF DER WEISZEN RATTE, by Th. Langhans and C. Wegelin. Bern, 1919, pp. 131.

This book would perhaps be more interesting if there did not exist quite a number of similar books and booklets on the same topic and with the same general content. Langhans and Wegelin fed white rats with water (boiled and not boiled) or with milk from districts in Switzerland where goiter is prevaalent. The effect was at times the development of goiter, but often no effect was seen. So the conclusion is, as in most other publications, that the water may have some relation to goiter, but that it is certainly not the only cause and that, after all, we know little about the matter It seems extremely doubtful whether a new book was needed to reiterate this. It was found, however, that minute doses of iodids protect the rats from goiter. The corroboration of this observation and the excellent illustrations are perhaps the most valuable features of the work.

—J. KOOPMANN.

ABSTRACTS

(ADRENAL) Hematoma de la cápsula suprarrenal. Bacigalupo (J.) and Perazzo (E.). Prensa Med. Argentina, 1919, **6,** 161.

Anatomical observations of technical interest upon a newly born child.—R. G. H.

(ADRENAL) Addison's disease. Balen (M. J.), J. Am. M. Assn. (Chgo.), 1920, **74,** 82-83.

A brief case report with the following points of interest: A male, age 48, tailor, six months before admission complained of marked fatigue, dizziness, and headache, accompanied by a gradually increasing brownish pigmentation of the skin, especially on the face, chest, hands and abdomen. The heart action was very feeble, blood pressure low (systolic by mm. Hg). The lungs showed evidence of chronic tuberculosis. Death occurred 24 hours after admission.

Necropsy more than 24 hours after death, showed extensive miliary and many calcified tubercular lesions of the lungs. The spleen was greatly enlarged, but without tubercles. The adrenals were greatly enlarged, especially the left, and one section showed a diffuse fibrocaseous degeneration of the medullary portion, with marked cortical atrophy. The cortex on microscopic examination showed a number of small but typical tubercles.

—F. C. P.

(ADRENALS) Urea excretion after suprarenalectomy. Bevier (G.) and Shevky (A. E.), Am. J. Physiol. (Balt.), 1919, **50,** 191-203.

The removal of the suprarenals in rabbits is followed by a depression of the rate of urea excretion. The result is like that obtained by subcutaneous injection of optimum doses of pituitrin and contrary to that obtained after injections of epinephrin. It is suggested that these findings support the hypothesis that there is an epinephrin-pituitrin balance in the blood which may regulate the rate of kidney function.—T. C. B.

(ADRENALS) The development of the urogenital system in the Marsupialia with special reference to Trichosurus vul-

pecula. Buchanan (G.) and Fraser (E. A.), J. Anat. (London), 1918, **53,** 35.

The discussion deals almost entirely with the urinary apparatus, but there is a brief description of the adrenals also. The development of these is quite as in other mammals.

—E. R. H.

(ADRENAL SYMPATHETIC SYST.) The treatment of sea-sickness (Sur le traitment du mal de mer). Cazamian (P.), Bul. gen. therap. (Paris), 1919, **170,** 782-784; Bull. Soc. Med. des Hôp. (Paris), 1919, **43,** 638-640.

In a study of over fifty subjects suffering with sea-sickness C. found normal urine and blood. There was generally present blood pressures higher than normal, and an inversion of the oculo-cardiac reflex. Lumbar punctures were without effect, and showed varying degrees of pressure in the cerebro-spinal fluid, which was otherwise normal.

He considers that the majority of subjects presented a fundamental sympathicotonia by virtue of hyperadrenalism induced by the stimulating effect of the rolling of the ship acting upon the vegetative nervous system. It is only when the suprarenal cortex is exhausted that the sympathetic tone decreases and the arterial tension is lowered. Apparently among adults the sympathicotonics are predisposed to mal de mer, while the vagotonics have a chance to escape.

The majority of medicaments utilized against sea-sickness have no relation with the fundamentals of the disorder. Basing treatment on the above considerations it was found that in the cases showing faulty action of the sympathetico-adrenal system, 1-2 mg. of neutral sulfate of atropine given subcutaneously was entirely satisfactory, when supplemented by adrenalin (6 mg. in 3 doses) orally administered at half hour intervals.—F. S. H.

(ADRENALS) Physiological action of the adrenalin discharged as the result of the stimulation of the splanchic nerve (Acción fisiológica de las descargas de adrenalina por excitacion del nervio esplácnico). Cevera (L.) and Houssay (B. A.), La Prensa Med. Argentina (Buenos Aires), 1919, **5,** —— (Nov. 20).

Stimulation of the splanchnic nerve in chloralized dogs produces a greater elevation in arterial pressure when the adrenal veins are free than when they are obstructed. If the obstruction is removed during stimulation there is observed a sharp elevation of the pressure preceded by a brief fall. Rarely this step (described by V. Anrep and others) occurs with the veins occluded. When the veins are unobstructed a constric-

tion of the paws is to be observed which does not take place when the adrenal veins are compressed; in the latter case the volume of the paw follows the variations in pressure; even if a marked hypertension is produced by intense stimulation of the splanchnic nerve.

Medullary puncture in dogs having the spinal cord destroyed to the level of the 12th dorsal vertebra, produces hypertension, particularly if the vagus nerves have been previously cut. At the same time there is a marked and long continued constriction of the paw deprived of its nerves. This constriction does not occur if the adrenals have been removed or their veins obstructed.

All these experiments demonstrate that excitation of the splanchnic nerve and bulbar puncture produce a discharge of adrenaline capable of producing vascular effects which are added to the vaso-constrictor action of nervous origin.—B. A. H.

(ADRENAL) Clinical notes from France. Cumston (C. G.), N. Y. Med. J., 1920, **111**, 154-157.

The vomiting of pregnancy is found clinically in three forms: "simple," "incessant" and "incoercible." Suprarenal vomiting of pregnancy may offer in a general way all the classical characters of gravid vomiting, but the symptomatology of suprarenal disturbance is superadded. Apparently the adrenals do not participate in the genesis of the simple type. In all instances of the adrenal form, vomiting is incessant or incoercible and offers the aspect of a very serious type of cases. Good therapeutic results are claimed for the control of adrenal vomiting by the administration of extracts of the entire adrenal gland. Adrenalin hydrochlorate by mouth (5 to 10 drops) and hypodermatically (0.5 to 1 mg.) is also of great service in these cases.
—H. W.

(ADRENAL) Endocrine imbalance with predominant adrenal deficiency (A proposito di un caso di squilibrio endocrinico pluriglandolare con prevalente insufficienza delle glandole surrenali). Farmachidis (C. B.), La Riforma Medica (Naples), 1919, **35**, 829.

The case belongs to those which Pende calls "pluriglandular syndrome with uniglandular predominance." In the present case adrenal symptoms were particularly in evidence but polyuria from dysfunction of the hypophysis and several disturbances referable to the celiac plexus were also manifested.

Although the Wassermann reaction was repeatedly negative, owing to the hardening of the peripheral arteries and the enlarged spleen and lymphatics the patient was tentatively

treated with mercury and the effect was a slow, but total recovery.—G. V.

(ADRENAL) Acute peritoneal form of adrenal insufficiency during the course of chronic adrenalism (Insuffisance surrénale aiguë a forme péritonéale au cours d'une surrénalite chronique). Fiessinger (N.) and Leroy (E.), Rev. gen. de clin. et de therap. (Paris), 1917, **31**, 325-328.

The autopsy findings in this case showed marked lesions of the adrenal bodies justifying the diagnosis of acute adrenal insufficiency made at the onset of the disorder. The case record reports frequent emesis of bile-containing matter, accompanied by the facies and pulse of the peritoneal type. The treatment consisted of subcutaneous injections of 2 mgm. adrenalin per day, but this was unavailing.—F. S. H.

(ADRENAL EDOCRINE ORGANS) The functional connection between the reproductive organs and other glands of internal secretion. Hewer (E. E.), Brit. Med. J. (London), 1920, (i), 293.

The paper gives a preliminary summary of the results of injecting white rats with various preparations of suprarenal cortex. In nearly every case the hair began to come out, although the coat was usually very fine and glossy. In a few cases so much hair came out that the coat appeared ragged. Most of the animals were perfectly healthy. The thymus was found to become more vascular. In the pancreas an inconstant hypertrophy of the islets of Langerhans was observed. The adrenals were not altered in size, but the cortex was unusually vascular. Large spaces containing blood and debris were seen between the cells in the zona glomerulosa. Signs of disintegration were found in the two outer zones of the cortex. Very marked degeneration was obtained in the testes. The spleen and liver were not affected. In another series of experiments, feeding the animals with desiccated suprarenal cortex brought about some change in the rate of growth.—L. G. K.

(ADRENAL DIABETES) The relation between blood pressure and blood sugar (Over de vorhouding ausschen den bloedsdruk en het suikergehalte van het bloed). Hovens Gréve (C.), Inaug. Dissertation, Leiden, 1919.

It is well known that adrenalin has an influence both on the blood pressure and on sugar metabolism. Increases in blood pressure after injection of adrenalin may be accompanied by glucosuria. On the other hand, the low blood pressure in Ad-

dison's disease is accompanied by a diminished amount of blood sugar. Therefore the author examined the blood in nephritis, in hypertonia without nephritis and in diabetes. In many cases no relation between blood sugar and blood pressure could be detected. There are, however, striking cases of hypertonia without demonstrable anatomical lesions with hyperglycemia.

In diabetes there are two forms, those with and those without increased blood pressure. It is possible that this last form is of chromaffin origin. The treatment of these patients requires perfect psychic rest. Perhaps atropine or pilocarpine is of some use.

When a patient has increased blood pressure and hyperglycemia we have, however, no right to speak of a "latent diabetes." The author proved that when a large amount of carbohydrate was given to such a patient, the influence on the amount of blood sugar was much smaller than when even a very small dose was administered to a true diabetic.—J. K.

ADRENAL, syndrome, Dystrophies and necrotic lesions in—(Dystrophies et lesions nectrotiques dans les syndromes surrenaux). Hutinel (P.), Bull. Med. (Par.), 1916, **30**, 573-585.

The author postulates an endocrine factor in various infections and intoxications, which modifies altogether the aspect of the morbid process. The adrenals are especially charged with this abnormal reaction and the resulting groups of signs and symptoms are together spoken of as a suprarenal syndrome. This consists chiefly of cardiovascular phenomena, giving rise to general malnutrition of all of the tissues which prolongs the duration of the original disorder. The symptoms of myocardial insufficiency are closely simulated in some respects: The skin shows signs of malnutrition and may show diffuse pigmentation. The urine changes resemble those of acute febrile conditions. In some cases there are said to be marked psychic changes of various kinds.—I. M.

(ADRENAL) Endocrine tropisms. Adrenotropisms. Kaplan (D. M.), N. Y. Med. J., 1920, **111**, 241-248.

The author ascribes certain "thyro-rheumatic," "thyro-endocardial" and "pituito-appendical" syndromes to a tonsillopathy requiring endocrine interpretation and attention. The result of indiscriminate tonsillectomies is not immediate but an insidious cachexia tonsilloprevia which may assume the clinical form of unmanageable headache, cardiac distress, osseous or articular manifestations, obscure leucocytoses, peculiar febrile rigors or a fulminating appendiceal infection.

Individuals dominated by their adrenal apparatus, are "adrenotropic." Manifestations of adrenotropism are: Pigmentation of the skin, hyperchlorhydria, biotrophic tendencies to diphtheria, influenza and tuberculosis—or rather their preferential selection of the adrenals—weak toleration of depressant coal tar derivatives, tobacco tolerance, physical and psychical vigor, energy and persistence, hirsutism, long and pointed canines, dark complexion, red hair, carbuncles, asthma, adrenal diabetes, adrenal Basedow's disease, epinephroma, anencephalia, hyperchlorhydria adrenopathica, masculinism, vascular hypertension and hypotension, pulmonary edema, aeroparesthesia, erythromelalgia, dementia praecox, psychasthenia, polychromatophilia, "pernicious anemia," certain hernias, carcinoma and other conditions!—H. W.

(ADRENAL) The hyperglycaemia of asphyxia, and the part played therein by the suprarenals. Kellaway (C. H.), J. Physiol. (Lond.), 1919, **53**, 211-235.

The difference of opinion between Stewart and Rogoff and Cannon and Hoskins as to the part played by the suprarenals in the hyperglycemia of asphyxia has led to a reinvestigation of the subject. The observations were made on cats without anesthesia, and the paradoxical pupil reaction was taken as an index of the output of adrenalin. The author has satisfied himself that asphyxia causes an increased output of adrenalin, and has attempted to determine the responsibility of this output for the hyperglycemia which follows asphyxia. The conclusions drawn are as follows: (1) The increase of adrenalin and of sugar in asphyxia are mainly due to lack of oxygen. (2) The main effects in ordinary anoxemia are due to action on the central nervous system, through the splanchnics. (3) In severe anoxemia with the splanchnics cut, both effects are produced by peripheral action. (4) The increase in blood sugar is only in part due to adrenalin.—T. C. B.

(ADRENAL) The treatment of Addison's disease (Zur Behandlung der Addisonischer Krankheit). Quincke (H.), Therap. Halbmonatshefte (Berlin), 1920, **34**, 42.

A description of two patients who had lived during the war in extremely bad environment. Both showed all the classic symptoms of Addison's disease and were cured by the administration of 100 mgm. of desiccated adrenals daily. The author suggests that in these cases there is no anatomical lesion but a diminished function of the adrenals caused by undernourishment.—J. K.

ADRENAL deficiency and adrenalin in cholera and seasickness (Insuffisance surrénale et adrénaline; "Cholera et mal de mer"). Naamé, Paris Med., 1917, **7,** 415-416.

Naamé agrees with several of the French observers that the symptomatology of cholera is due largely to acute adrenal insufficiency and that administration of adrenalin is the logical treatment.

A theory is offered that sea-sickness is due to inhibition of the adrenal glands brought about by the action of the undulatory movement upon the solar plexus. In substantiation of the theory, the observation is recorded that the administration of adrenalin has an excellent effect upon the malady. Numerous successes are reported. Large doses should be employed, 5 to 6 mgm. in 24 hours, the doses being given at half-hour or hour intervals, especially when the stomach is empty. The nausea is promptly relieved and the normal ability to retain food is restored.—R. G. H.

(ADRENAL) Action of drugs on the output of epinephrin from the adrenals. V. Curara. Stewart (G. N.) and Rogoff (J. M.), J. Pharm. & Exp. Therap. (Balt.), 1919, **14,** 343-354.

Curara in doses sufficient to paralyze the skeletal muscles in the cat depresses the output of epinephrin from the adrenals to a marked degree. The depression begins promptly and may be still well marked when the paralysant effect on the muscles has begun to disappear. Although precise calibration was not attempted it was found that the output of epinephrin was depressed markedly at a time when stimulation of the vagus caused cardiac inhibition.—F. F.

(ADRENAL) Asthmatic spasm treated by adrenin (Crise d' asthme, traitement par l' adrenaline). Thiroloix (J.), Bull. gen. de Therap. (Paris), 1916-17, **169,** 97-98.

T. reports six cases in which the subcutaneous injection of 1 cc. of adrenaline relieved the asthmatic spasms completely. He recommends the drinking of black coffee by the patient after the administration of the drug to relieve the after effects of the large dose given.—F. S. H.

(ADRENAL) Morphology and cytology of the chromaffine system of saurians (Nuovo contributo alla conoscenza del sistema cromaffine dei Sauri. Studi morphologici e citologici sulle capsule surrenali, con speciale riguardo ai paragangli omonimi.) Trinci (G.), Arch. ital, Anat. e Embryol. (Firenze), 1916, **14,** 513.

An anatomical study of the adrenal, and inter-renal chromaphil tissue and paraganglia of reptiles; of technical interest.
—E. R. H.

(ADRENAL) The hypertrophy of the suprarenals in the pregnant rabbit should not be attributed to the presence of the foetus (L'hypertrophie des capsules surrénales chez la lapine gestante ne doit pas être attribuée a la présence du foetus). Watrin (J.), C. R. Soc. de Biol. (Paris), 1920, **82**, 1405-1407.

In previous experiments the action of the corpus luteum and the unattached ovum were studied. In this paper another factor, the placenta, is considered.

The placenta consists of cells of maternal origin, and cells of foetal origin, either of which may have an action on the suprarenals. By making an incision in the uterus of a rabbit whose ovaries contain corpora lutea, it is possible to produce cellular elements in the absence of the foetus, that are identical with those of normal maternal origin. Under these circumstances it is found that the placental elements of maternal origin have no action by themselves, and the hypertrophy of the suprarenals must be due to uterine traumatism.

It is impossible to produce the foetal placenta in the absence of the foetus, but if we submit a rabbit to a fecundating coitus and on the 10th day remove the embryo through a small incision in the uterine wall, the wound heals quickly and the placenta continues to develop. If we examine the suprarenals 10, 15, or even 20 days after the operation, they show hypertrophy equal or superior to that observed in a normal gestation. As the foetus has been removed and the traumatism is slight, we must look to the placenta as the cause. This is in opposition to most biologists who make the foetus the direct factor in the hyperfunctioning of the suprarenals.

The author thinks this "hypertrophie gravidique" is of the same order as the hypertrophy of other glands of internal secretion, such as the thyroid and hypophysis. It is a reaction to specific substances secreted by the attached ovum and by the elements of the foetal placenta. It is believed that the capsules have been "sensitized" by the secretion from the corpus luteum.
—T. C. B.

(ADRENAL) A case of Addison's disease (Een geval van ziekte van Addison). Wertheim Salomonson (J. K. A.), Nederl. Tijdschrift v. Geneesk. (Haarlem), 1919, **63** (ii), 1930.

A description of a classical case.—J. K.

ADRENIN, Unusual action of — in elderly persons (Ungewöhnliche Wirkungen des Adrenalins in höheren Lebensalter). Arnstein (A.) and Schlesinger (H.), Wien. klin. Wchnschr. (Vienna), 1919, **32**, 1179.

Precaution is necessary in the giving of adrenalin to elderly persons since frequently after the injection of small doses of this drug the rise of blood pressure is followed by a sharp fall and the heart-beat may become very slow for some hours. Tachycardia may be produced in individuals having cardiac insufficiency and when there is present a sclerosis of the coronary arteries the injection of even small doses may be followed by severe attacks of stenocardia. In rare cases glycosuria results. —J. K.

(ADRENIN) Adrénaline et dissociation auriculo-ventriculaire (Etude a l'electro-cardiographe). Arrillaya, Thése de Paris, 1918-1919; Abst. Presse med., **27**, 389.

By means of the electrocardiagram, Arrillaya studied the reactions of six subjects of auriculo-ventricular dissociation to injections of adrenin. In the records the auricular and ventricular beats could, of course, be differentiated. It was found that adrenin caused a simultaneous increase in the rate of both auricles and ventricles. It did not ever result, however, in a recomposition of the cardiac rhythym. In four cases the auricles and ventricles began to react simultaneously and in two, the ventricles reacted more promptly. It is stated that the reaction to adrenin is more marked in patients exhibiting adrenal deficiency. Although not able to restore synchrony in the activity of the two parts of the heart, adrenin has a beneficial symptomatic effect, especially in dissociation due to intoxication with salicylates, digitalis or emetine.—R. G. H.

(ADRENIN PITUITRIN) Permeability of the blood vessels (Über die Durchlässigkeit der Gefässe). Bauer (J.) and Aschner (B.), Wien. klin. Wchnschr. (Vienna), 1919, **32**, 1204.

The injection of adrenalin caused an increase in the permeability of the blood vessels towards water and chlorine while pituitrin had no such effect.—J. K.

(ADRENIN) Studies on the regulation of the blood diastase. Fugimoto (B.), Am. J. Physiol. (Balt.), 1919, **50**, 208-215.

The object of the investigation was to determine if possible how the blood diastase is regulated. Among other things the effect of injections of adrenalin was tried. After injuring

the liver by hepatotoxin, injections of adrenalin had no effect on the diastase content of the blood.—T. C. B.

(ADRENIN) The secretion of adrenalin is not necessary for the maintenance of arterial pressure (La sécrétion surrénal d'adrénaline n'est pas nécessaire au maintien de la pression artérielle). Gley (E.) and Quinquaud (A.), C. R. Soc. de Biol. (Paris), 1919, **82,** 1175-1178.

The experiments of Strehl and Weiss have been repeated with negative results. When the right suprarenal was removed, and the vein of the left ligatured to prevent circulation, there was no fall of blood pressure as reported by Strehl and Weiss. —T. C. B.

ADRENALIN, The action of — on the heart. I. Action on the turtle heart. II. The modification of the action of adrenalin by morphine. Heinekamp (W. J. R.), J. Pharm. & Exp. Therap. (Balt.), 1919, **14,** 17-24, 327-342.

Heinekamp finds that adrenalin exerts a direct stimulating action on the vagus centers of the turtle. After repeated use it loses this effect. Injected directly into the heart muscle it increases both rate and amplitude, principally affecting the systole.

It was found that adrenalin has a direct central action and is synergistic with morphin. Morphin to a degree sensitizes the vagus center. The aggravated adrenalin action following morphin is due, therefore, both to the morphin sensitization and the adrenalin-morphin synergism. The increased blood pressure plays but a slight part in affecting the inhibition of the heart. —F. F.

(ADRENIN) Cecal stasis with betaiminazolylethylamine (histamine) intoxication in relation to dementia precox; indications for treatment. Holmes (Bayard), Am. Med. (Chgo.), 1916, **11,** 405-413.

Holmes discusses the problems connected with the etiology and treatment of dementia precox with special reference to the association of the disease with functional disturbances in the glands of internal secretion and with constitutional toxemia. The fact that dementia precox cases manifest the adrenalin paradoxes observed in animals or persons under the influence of toxic amines, such as those in ergot, suggested the possibility that this disorder might be due to excessive amounts of such substances in the body. With the assistance of a chemist, a number of patients were examined and a large excess of βiminazolylethylamine was found in their feces.

Study of the motor activity of the intestines of these same patients gave definite evidence of spasm of the colonic sphincter and exaggerated cecal stasis, which favor the production of the toxic histamine from histidine by bacillus aminophilus intestinalis and its absorption into the blood stream. From these results Holmes suggests that the treatment of dementia precox cases be directed against the production of the toxic substances in the cecum and proposes appendicostomy with protracted irrigation of the proximal colon through the artificial opening until better means can be found.—I. M.

ADRENIN treatment of influenza (Adrenalinbehandlung der Grippe). Jaksch-Wastenhorst, Deutsche med., Wchnschr. (Berlin), 1920, **46,** 112. Münch. med. Wchnschr. (Munich), 1920, **67,** 31.

Many authors have recommended the use of adrenalin in the serious cases of influenza but J. has never obtained good results from its use and warns against employing this drug in the disease.—J. K.

(ADRENIN) A new conception of asthma. Knapp (M. I.), N. Y. Med. J., 1920, **111,** 55-59.

Asthma is considered the result of gastrointestinal disturbances, especially insufficientia pylori. The use of adrenalin in controlling asthmatic attacks is not justifiable, in the author's opinion, because of the transitory relief given and the effect upon structures other than the lungs.—H. W.

(ADRENIN) The mode of action of adrenaline on the bacterial toxins (Du mode d'action de l'adrénaline sur les toxines bacteriennes). Marie (A.), Ann. l'Inst. Pasteur. (Paris), 1919, **33,** 645-656.

Although adrenaline renders innocuous bacterial toxins such as those of diphtheria and tetany, and is also antagonistic to the vegetable poisons crotine, and abrine, it is not effective in preventing the fatal effect of the alkaloids, strychnine sulfate or morphine chlorhydrate in the usual lethal dose. The same can be said for its lack of neutralizing action against nicotine, cocaine, and tuberculin. Marie bases this difference in protective effect on the fact that the one group produces antibodies in the blood, while the other group, the vegetable alkaloids, does not so do, and although adrenaline does not destroy the antigenic properties of the tetanus toxin, it does neutralize doses ordinarily fatal. The mode of action is tentatively given as one of preliminary oxidation of the toxin by the adrenalin, facilitating its absorption by the antibodies.—F. S. H.

ADRENIN, The effect of — upon the rate of locomotion of Planaria and of toad larvae. Moore (E. L.), Biol. Bull. (Woods Hole), 1919, **37**, 157.

Planaria, so far as known, do not produce any secretion corresponding to adrenin, yet they are made more excitable by dilute solutions of this substance, with resultant early fatigue. The increased excitability resulted in in-coordinated movement and in many cases interfered with locomotion. Toad larvae which have adrenals tended to react to adrenin in the same manner as Planaria.—E. R. H.

(ADRENIN PITUITRIN) Action of certain drugs on the brain circulation in man. Raphael (T.) and Stanton (J. M.), Arch. Neurol. & Psych. (Chgo.), 1919, **2**, 389-392.

Records of the pulsations of a subtemporal cerebral hernia were made after the inhalation of amyl nitrite and the intravenous injection of epinephrin, caffein, and pituitrin. Epinephrin induces a primary constriction of the brain vessels, followed by a marked dilatation. Pituitary extract injections result in a dilatation of the brain vessels.—F. C. P.

(ADRENIN PITUITRIN) Cardiac death due to diphtheria. Rohmer (P.), Berl. klin. Wchnschr., 1917, —, 1059; Abst., La Pediatria.

Owing to the adrenal insufficiency found in paralysis of the heart, Rohmer recommends adrenalin hypodermically (not intravenously since this proves too often dangerous). One to 3 cc. of 1:1000 adrenalin hypodermatically used very often, or adrenalin and pituitrin in association, is claimed to be of a great usefulness.—G. V.

(ADRENIN) The occurrence of epileptic seizures after the injection of adrenalin preparations (Nella provocazione degli accessi epilettici coi preparati surrenali). Silvestri (T.), Gaz. degli Ospedali. (Milan), 1919, **40**, 852.

A claim for priority of recorded observation of the production of epileptical seizures by the administration of adrenalin to epileptics. (See Endocrin. **3**, 349).—J. K.

(ADRENIN PITUITRIN) Rhythmic contractions of vessels. Soloveitchik (D. E. A.), Dissertation, Petrograd, 1917, pp. 82.

A method of Kravkov (isolated ear of a rabbit) was used with a modification which consists in excluding the veins by ligaturing them in order to observe only the changes of arterial

aperture. Spontaneous contractions of vessels can be observed while perfusing the preparation with Locke's solution; their strength varies within wide limits; sometimes they are totally closed. If the ear is kept at the temperature about 0° it is possible to observe the contractions even 6 to 10 days after the operation. The temperature of the body is more favourable for these contractions than lower ones. Oxygen does not produce any visible influence on these contractions. Adrenaline augments the spontaneous contractions at body temperature, but has little effect at room temperature. Atropine antagonises adrenaline. The most efficient concentration of a drug is that which produces a strong vaso-constrictor action. Histamine, ergotoxine, and pituitrin augment these contractions; rabbit serum in concentrations which produce a strong vaso-constrictor effect, extracts of suprarenals and of the heart of rabbits augment the contractions. Strophanthin and digitalin augment them if the pressure of the perfusion liquid is increased after the contraction of vessels evoked by the drugs used. Nicotine and strychnine augment the contractions, veratrine lowers them. No visible influence is produced by pilocarpine, eserine, caffeine, quinine, chloroform, camphor, barium chlorate, or lactic acid. The contractions described above are spontaneous in a real sense; the constituents of the blood merely regulate them. It is an inherent property of the muscular fibres.—Physiol., Abst., **4**, 388.

(ADRENIN) Hemophilia. Sugiura (J.), Jikwa Zasshi, 1916, **199**, 1-22; Jap. Med. Lit., 1917, **2**, 6.

A case is described in which fibrin factors were normal, but in which the blood contained a large amount of adrenin.—Physiol. Abst., **3**, 536.

ADRENIN treatment of influenza (Grippebehandlung mit Adrenalin). Wagner (G. A.), Münch. med. Wchnschr. (Munich), 1920, **67**, 31.

The use of adrenalin in influenza is indicated only when the case is complicated with penumonia and the lungs are rapidly invaded by a serous exudate. The drug should never be given intravenously since it causes a diminution of the blood vessel permeability.—J. K.

(ADRENIN OVARY) Treatment of osteomalacia of pregnancy with adrenalin (Behandlung der Schwangerschaftsosteomalazie mit Adrenalin). Wagner, (G. A.), Münch. med. Wchnschr. (Munich), 1920, **67**, 31.

This is a report of a case of a pregnant woman with bronchitis, bronchiectasis and thoracic pain accompanied by

symptoms of osteomalacia. After a few injections of adrenalin the pain disappeared. During 58 days a total of 91cc. of adrenalin had been injected. After a premature confinement the patient's ovaries were removed. The interstitial cells of both were found to be enormously developed.—J. K.

AUTONOMIC NERVOUS SYSTEM, The arrangement of. Langley (J. N.), Lancet (Lond.), 1919, (i), 951.

Prof. Langley points out that since the appearance of Gaskell's book, "The Involuntary Nervous System," there has been a tendency among writers to consider that the main problems of this system were settled by Gaskell. The truth is that Langley himself worked out a great many of the facts of fundamental importance attributed to Gaskell.—L. G. K.

(BLOOD SUGAR DIABETES) The influence of muscle activity on the amount of blood sugar (Der Einfluss von Muskelarbeit auf den Blutzuckergehalt). Brösamlen (O.) and Sterkel (H.), Deutsches Arch. f. klin. Med. (Leipzig), 1919, **130,** 358.

The authors found that in normal persons the blood sugar concentration with the subject at rest and with empty stomach shows, when examined at different moments, but few variations. In diabetes these variations are more pronounced but never very great. In normal persons much activity diminishes the amount of blood sugar: this may be preceded by a very short moment of hyperglycemia. The blood sugar reaches the lowest amount, approximately an hour after the end of the muscle activity. In diabetes the same influence may be observed, though extremely rarely; nearly always muscle activity is followed by hyperglycemia, lasting for many hours.—J. K.

A BLOOD SUGAR tolerance test. Janney (N. W.) and Isaacson (V. I.), Proc. Soc. Exp. Biol. & Med. (N. Y.), 1917, **15,** 15-16.

It is considered that the hyperglycemia response to ingested sugar is a better test of sugar tolerance than the appearance of sugar in the urine. The test is carried out by first determining the blood sugar of the patient who has fasted over night, and then administering pure glucose in the ratio of 1.75 gm. per kgm. of body weight in a 40 per cent aqueous solution, with the addition of a lemon, and again determining the blood sugar at the end of two hours. In normal subjects the blood sugar has by this time returned to its fasting level. If hyperglycemia still persists, the blood sugar tolerance is lowered. Preferably half hourly observations are made following the

glucose ingestion as well as the sugar eliminated in the urine, and for the twenty-four hours.

Glycosuria which is normally absent under the conditions of the test is not a necessary accompaniment of decreased tolerance. A normal blood sugar curve accompanied by glycosuria usually indicates renal diabetes. All cases of Graves' disease examined show a prolonged blood sugar curve, as do certain cases of chronic interstitial nephritis. Hypoendocrine conditions such as cretinism and muscular dystrophy are characterized by increased sugar tolerance with the ordinary urinary test, but blood sugar determinations showed hypoglycemia and a delayed tolerance curve.—F. S. H.

(CAROTID GLAND) The function of the so-called carotid gland (Über die Funktion der sogenannten Carotisdrüse). Massaglia (A.), Frankf. Ztschr. f. Pathol. (Wiesbaden), 1916, **18**, 333-347.

The author being unable to obtain the chromaffin-reaction in the carotid-gland after fixation in potassium bichromate and formalin, studied the effect of its cauterization or removal from cats, dogs, and rabbits, with particular respect to the production of glycosuria. The cauterization, removal, or cutting of the nerves to the gland caused but a transient glycosuria in cats and dogs, and but little, if any, effect in rabbits. This is explained on the basis of a stimulation of the sugar center as a result of the operation and not as due to the glandular properties of the tissue itself. The author concludes that on the basis of this evidence the so-called carotid-gland should be considered as a paraganglion.—F. S. H.

(CORPUS LUTEUM) Organotherapy in uterine hemorrhages (Zur Organotherapie der Gebärmutterblutungen). Hannes (W.), Monatsch. f. Geburtsh. u. Gynäk. (Berlin), 1919, **50**, 199-205.

The logical course of treatment of menorrhagia not due to a tumor formation or disturbance of pregnancy is essentially organotherapeutic, and dependant upon the use of some preparation of the corpus luteum. It was found that the subcutaneous injection of the contents of a 1.1 c.c. ampoule representing 1 gm. of fresh tissue gave satisfactory results. As examples three cases are cited in which the hemorrhage in a 24 year old, a 25 year old, and a 44 year old woman had lasted for 3 weeks, 2 weeks, and 20 days respectively. In all three cases the hemorrhage was brought to a complete stop by one injection of the extract. All cases do not necessarily respond so quickly, but, by and large, the final results are the same. It frequently happens

that the first menstruation after the treatment is somewhat delayed while the duration of the period is usually shortened.
—F. S. H.

CORPUS LUTEUM, Menses-increasing substance from—. Seitz (L.) and Wintz (H.), U. S. Patent 1,318,698, Oct. 14, 1919.

A menses-increasing substance is obtained from corpus luteum by separating the watery liquid containing the active substance from a mixture of alcohol extracts and $CHCl^3$ extracts obtained by successive extraction of ovaries with cold alcohol, hot alcohol, $CHCl^3$ and boiling alcohol, by adding an excess of $CHCl^3$ to the mixture of extracts, and then isolating the active substance by evaporating the aqueous liquid and purifying the residue with ether. U. S. 1,318,699 relates to a modification of the method, according to which there is separated from the alcohol extracts obtained by extracting ovaries successively with alcohol, acetone, cold and warm ether, $CHCl^3$ and hot alcohol, first the H_2O and constituents soluble in H_2O by the addition of an excess of $CHCl^3$ and then there is recovered from the remaining alcohol $CHCl^3$ mixture the menses-controlling substance by evaporating and extracting again the residue of the evaporation with both the ether extracts previously obtained, evaporating the extract thus obtained to dryness, redissolving the orange-yellow mass obtained, filtering the solution and evaporating it in vacuo until a mass of uniform consistency is obtained.—Chem. Abst.

(CORPUS LUTEUM) Ueber die Beziehungen des Corpus Luteum zur Menstruation. Seitz (L.) and Wintz (H.), Monatschr. f. Geburtsh. u. Gynaek. (Berl.), 1919, **49**, 1-23.

Correction of reference, Endocrin. **3**, 353.

DERCUM'S DISEASE following exposure to war, with biopsy of the tumors (Morbo di Dercum in seguito a vita di guerra, con biopsia di qualche tumore). Boschi (G.), Riv. Pathol. nerv. e ment. (Firenze), 1918, **23**, 161-192.

In his original description of adiposis dolorosa Dercum mentioned the possibility that it is primarily of endocrine origin. A case is described by Boschi which throws light upon the problem. A young soldier having this disease showed, among other things, swelling of the thyroid approximately contemporaneously with the first appearance of lipomata, hyperidrosis, frontal and bitemporal headaches, asthenia and hypoaphrodisia. The illustration published shows transverse crines. Blood pressure was 160/100. These findings are interpreted as indicating a pluriglandular etiology of the disease, in which the hypophysis

played the principal role. The psychological, neurological and somatic findings are reported in detail and the etiology discussed at some length.—R. G. H.

DERCUM'S DISEASE, Researches on metabolic exchange in —(Di alcune ricerche sul ricambio nella malattia di Dercum). Martelli (C.), Patholgica, 1916, —, 189.

The author noted that in a case of Dercum's disease the nitrogen and mineral components of the urine were in general diminished. After thyroid-adrenalin therapy they were increased. The increase was noted in both urea and non-urea nitrogen, but the quantity of amino acid nitrogen was decreased.—Riv. Patol. nerv. e ment., **22,** 503.

(PANCREAS DIABETES) Diet reduction with retention of protein to relieve glycosuria in diabetes mellitus. Fenlon (R. L.), Boston M. and S. J., 1920, **182,** 168-171.

The tendency to develop acidosis is decreased by keeping the protein intake of the diet at a "necessary level." This is considered to be 0.12 grams of nitrogen per kilogram of body weight. The patients complain less of hunger on such a dietary measure than when this factor is ignored. The author believes the protein indirectly maintains the serum protein of the blood and possibly aids in the nutrition and functioning of the kidney during diet reduction.—H. W.

DIABETES, The lime deficiency of—. Kahn (Max) and Kahn (Morris H.), Arch. Int. Med. (Chicago), 1916, **18,** 212-227.

The object of the investigation was to show the importance of lime deficiency in diabetes. Much evidence that calcium deficiency occurs with great frequency is cited from the literature. Studies were made on early cases of diabetes. These showed that calcium was being lost constantly from the body. Calcium chloride injected intravenously caused marked improvement in the symptoms. Glucose excretion fell markedly and glycemia gradually declined. The quantity of urine was reduced and acetone bodies did not appear in the urine of any of the patients.—I. M.

(DIABETES) The "Allen" treatment of diabetes modified by the administration of alikalies in full doses. Mulvany (T. E.), Practitioner (Lond.), 1918, **101,** 171.

A brief report of a case of diabetes in a man of 19 years. The Allen starvation treatment only temporarily cleared the urine of sugar and the patient appeared to be on the verge of

coma. Starvation was then tried again and a teaspoonful of bicarbonate of soda in a glass of water was administered every four hours. In four days the patient was sugar-free, and at the time of writing, about five months later, the patient's health was excellent and he was still sugar-free.—L. G. K.

(DWARFISM) An unusual case of dwarfism in twins. Goldstein (H.) and Schneck (M.), N. Y. Med. J., 1920, **111**, 98-100.

Case report of dwarfism in one of twins. The authors conclude this case to be one of a class of dwarf growths, showing no evidence of any preverted internal secretion or defective constitutional condition. The case is considered one of achondroplasia or chondrodystrophia (Kaufman).—H. W.

ENDOCRINE disturbances, Multiple—(Sindrome pluriglandolare). Fici (Vincenzo), La Riforma Medica (Naples), 1919, **35**, 778-782.

Fici reports a case of pluriglandular syndrome (hypoadrenalism, hypopituitarism, hypo-ovarianism, status lymphaticus and splenomegally) in a woman of 33. The illness began seven years ago. The only antecedent symptom that might be connected with the later syndrome had been a fit of diarrhea, vomiting, and cramps in the lower limbs, which lasted about twenty days. The patient ascribed the beginning of the malady to sorrow over losing a child. She had severe headaches and intractable eczema of the eyes, probably ascribable to pituitary or other endocrine anomalies. Injections of pituitary, ovarian and thyroid extracts failed to elicit a reaction. There was only a slight response to adrenalin, but a marked one to atropine and a partial one to pilocarpine. These latter findings, together with a tendency to vomiting, diarrhea and asthma, indicate vagatonia. As to etiology nothing beyond psychic trauma was discovered. Tuberculosis, which is frequently found in such cases, was absent in this.—G. V.

ENDOCRINE GLANDS, Studies on the conditions of activity in —. V. The isolated heart as an indicator of adrenal secretion induced by pain, asphyxia and excitement. Cannon (W. B.), Am. J. Physiol. (Balt.), 1919, **50**, 399-432.

This is the full report promised by Cannon in a short article in Science (May, 1917, 45, 463) delayed on account of his absence. It is an answer to the criticisms of Stewart and Rogoff and others, and should be read in the original. The positive evidence in favor of adrenal secretion during pain, emotion and asphyxia is reviewed and criticisms of the catheter method are considered. The author defends the use of the isolated heart as

an indicator of adrenal secretion, criticises the methods yielding negative evidence, and reaffirms the emergency theory of the function of the adrenals.—T. C. B.

(ENDOCRINE INSUFFICIENCY) The clinical picture of inanition osteopathy (Zum klinischen Bilde der Hungerosteopathie). Hamel (O.), Deutsche med. Wchnschr. (Berlin), 1920, **46**, 68.

Five cases are described in this paper, two of which showed tetanic symptoms. The probable cause is endocrine insufficiency resulting from undernourishment.—J. K.

ENDOCRINE neuroses and their treatment. Rogers (J.), N. Y. Med. J., 1920, **111**, 229-232.

The autonomic nerve and plates spray out like fingers around the receiving cells. Between these cells and the nerve spray lies the circulating lymph and blood with all the nutrient matter and endocrine products. The impulses discharged from the nerve spray can be imagined as pushing nutriment into the receiving cells. In this process the product of the thyroid, and probably other organs, seems to accelerate the cell chemistry, while that of the adrenal, and possibly the pituitary, seems to retard the cell's metabolism. The thyroid products acts only through or upon the terminal sprays of the vagus system, while the adrenal is limited in its inhibition to the terminal sprays of the sympathetic. A circle drawn around the receiving cells and the terminal neuron or spray of the motor and vagus and sympathetic nervous systems seems now to indicate the point of action of at least the pituitary, thyroid, parathyroid and adrenal glands. The circle also necessarily includes the point at which nutriment gains access to the cells and the products of their metabolism are excreted. The parasympathetic seems by vasodilation and stimulation of functional activity to drive all the organs, while the sympathetic seems to check them, and this drive influence is vastly reinforced by the thyroid. The adrenal, on the other hand, exhibits an equally strong influence upon the sympathetic check. These opposing effects are most clearly shown in the stomach and pancreas. (See abstract Endocrin., 1919, 3, 409.)

The moist and flushed skin, the overacting heart, abnormal appetite (vagus hunger contractions), frequent bowel movements and the diuresis of hyperthyroidism all point to excessive thyroid drive. Such cases usually appear to begin with an initial hypothyroid disturbance which, in turn, has its origin in fatigue or an acute infection of traumatism. Apparently both groups of nerves fail in the initial stage of these disorders. Then if the fatigue or toxemia continues, the check upon the metabol-

ism becomes more deficient than the drive and the result is hyperthyroidism. If, on the other hand, the drive becomes more and more deficient, the primary hypothyroidism deepens into a myxedema. To say that there is an excess of drive or excess of check in any instance, is probably not strictly correct. For what appears as an excess of drive may really be a lack of check, and the excess of check, a lack of drive upon the metabolism.

The treatment not only of thyroid disturbances, but of all functional disorders of the viscera, is or should be, primarily that of reinforcing the deficient drive or the deficient check. The thyroid nucleoproteins, in doses of 1/50 to 1/10 grain frequently repeated, are most satisfactory. The liquid residue or noncoagulable part of an aqueous extract (as prepared by the author) sometimes proves better. The commercial preparations made by desiccation of the entire gland tend to be inert or toxic. The thyroid nucleoproteins or residue are useful in all frankly hypothyroid or deficient drive conditions and in many so-called mixed hypothyroid and hyperthyroid disturbances in which there is evidence in some viscera of good or active functioning and in others of deficiency. The residue is clinically better than the nucleoproteins in the hypothyroid or mixed thyroid disorders which are accompanied by a high blood pressure and also in cases with gastric hypofunctioning. Thyroid and other neuroses such as those of the stomach and intestine, which show excess of the drive over the check upon metabolism, can be benefited by almost any adrenal derivative; adrenalin is the least satisfactory. The adrenal nucleoprotein in doses of 1/10 to 1/2 grain every 2 hours, or the adrenal residue in doses of 5 to 20 minims every 2 hours, are the most useful of the adrenal derivatives for medical treatment of hyperthyroidism.

Whenever hyperthyroidism is present and not speedily changed to the preceding hypothyroid disturbance, surgery is indicated, particularly, ligation of thyroid arteries. In recovery these patients always pass again in the order of the development of symptoms through the initial stage of hypothyroidism.

The pituitary, at least in the stomach and some parts of the intestine, seems to reinforce or support the adrenal check. The parathyroid apparently reinforces the thyroid drive, but not exactly at the same anatomical point. Hence, in the present state of knowledge, it is legitimate, when the drive or check symptoms cannot be helped by either thyroid or adrenal feeding, to experiment with the associated derivatives.—H. W.

(ENDOCRINE ORGANS) An introduction to the study of the endocrines in gynecology. Bandler (S. W.), N. Y. Med. J., 1920, **111**, 221-225.

Menstruation is dependent upon the normal development of the genitalia and the normal trophic control of these structures. Every menstruation is a crisis in which the ovary, thyroid and pituitary participate. Menstruation is preceded by premenstrual changes varying in intensity and degree according to the action and interaction of these glands. Women whose menstrual periods occur every 35 days are in need of endocrine stimulation. They are more likely to begin labor at a date later than estimated. Women with hypoplasia of the uterus and those who become pregnant after endocrine therapy often have a long and tedious labor. Those who have repeated miscarriages are probably hyperpituitary and when they finally carry a viable child may not go to term.

Disorders most amenable to endocrine therapy are actual or relative amenorrhea, lactation atrophy, menorrhagia, metrorrhagia, dysmenorrhea, sterility, "one child sterility," threatened and habitual miscarriage, disturbances of the climacterium, fibromyomata, and hyperthyroidism, dyspituitarism and similar conditions. Nervous and irritable gynecological patients usually are suffering from thyroid or pituitary disturbances. The relation between the various endocrine structures is less stable in women than in men, hence alterations in the cyclic functions of the sex apparatus result in endocrine disturbances manifested as changes of the body, altered nervous function and psychic instability.—H. W.

(ENDOCRINE ORGANS) Trauma and constitutional disease (Trauma en constitutioneele ziekten). Brocx (D.), Tijdschr. v. Ongevallen Geneesk. (Amsterdam), 1919, **4**, 257, 289, 321.

A general discussion, without new data, on the relation between trauma and diseases of the endocrine organs.—J. K.

(ENDOCRINE ORGANS EMOTIONS) Biochemical researches in normal and in frightened animals (Richerche biochemiche in animali normali ed in animali emozionati). (Preliminary report.) Buscaino (V. M.), Rivista di Patologia nervosa e mentale (Firenze), 1920, **24**, 400-403.

In the previous issue of this Journal Buscaino's earlier researches on the histo-chemistry of the endocrine organs were reported. The present paper deals in a preliminary way with some of the results obtained by the application of these methods to the study of the reactions of the various organs to the emotions. In addition to numerous negative or dubious findings there are reported a variety of positive results. Confirming earlier investigators, it was found that frightened guinea pigs and cats become glycosuric. Likewise the oxidizing power of

the blood serum is increased, especially in animals showing objective signs of fright.

Guinea pigs as well as dogs show diminution of the yellowish color assumed by pieces of central nervous substances treated with Lugaro's solution. Parallel to this runs a diminished affinity of all the nervous tissue for the toluidin blue. In guinea pigs augmented nuclear activity of the nervous cells occurs as shown by an increase of the granular contents in the cerebral cortex and still more in the nuclei of the base. The neuroglia cells become richer in fats.

Vascular congestion in the liver (cats), diminished glycogen (guinea pigs, cats), increased neutral fats (guinea pigs), diminution of neutral fats (cats), increased lipoids (guinea pigs, cats), increased fuchsinophil formation of the protoplasm (guinea pigs, cats), increased argentophil formation of same (guinea pigs, cats), marked nuclear variations and increase of special nuclei in guinea pigs as well as in cats were seen.

In the adrenal cortex there were noted vascular congestion (cats), increase of neutral fats and stearin (guinea pigs), diminution of neutral fats and stearin (cats), increased lipoids (cats), increased fuchsinophil formation of the protoplasm (guinea pigs, cats), marked nuclear variations and increase of a special form of nuclei in cats as well as in guinea pigs.

Similarly, the thyroid reacted by vascular congestion (guinea pigs, cats), increased volume of the protoplasm (cats, guinea pigs), marked nuclear variations and increase of the special nuclei (cats). In the interstitial cells of the testis (guinea pigs) only increase of the cellular size was noted. In the interstitial cells of the ovary (cats), there was increase in size of the cells, marked nuclear changes and increase of the special nuclei.—G. V.

(ENDOCRINE ORGAN) Glands and emotions under bombardment (Glands et emotions de bombardments). Etienne (G.) and Richard, Revue med. (Paris), 1918, —,— (Oct. 12), Reprint, pp. 7.

During the bombardment of Nancy the populace was subjected to intense emotional stress. The authors had several opportunities to observe striking endocrine defects which resulted in patients so excited. Various instances of mammary depression and of chlorosis were seen; these were ascribed to perturbation of ovarian functions. Two cases are described in which marked transcient glycosuria resulted. In two cases Graves' disease with hypertension and two with hypotension were seen. These also are described. In the light of Cannon's researches the authors regard the adrenal glands as playing a major role in the genesis of the maladies.—R. G. H.

(ENDOCRINE ORGANS) Arterial pressure and emotions of war (La pression arterielle et les emotions de guerre) Etienne (G.) and Richard, Paris med, 1919, **9**, 109. Reprint, pp. 13.

The authors had extensive opportunity during the war to study the genesis of hypertension as a reaction to emotional stress. They believe that the initial hypertension is due to excitation of the vasomoter system directly, but that continued stress leads to changes in the endocrine organs whereby the initial effect is augmented and continued. As evidence, cases are mentioned in which sudden shock resulted in amenorrhea, glycosuria, and swelling of the thyroid gland. Especial importance in this connection is ascribed to the adrenal glands, which can both reinforce the vasomotor impulses directly and secondarily stimulate other endocrine organs.—R. G. H.

(ENDOCRINE ORGANS) Must the extracts of glands in the study of endocrinology be substituted by blood or lymph, coming from these glands (Gli estratti ghiandolari devons essere abbandonati e sostituiti dal sangue o dalla linfa defluente dalle rispettive ghiandole, negli studi endocrinologici)? Ghedini (G.), Gazzetta degli Ospedali (Milan), 1919, **40**, 9.

The author warns once more against identification of the pharmocological action of an extract of an endocrine organ with the physioligical function of the organ itself. No new facts are adduced.—J. K.

(ENDOCRINE ORGANS, BLOOD SUGAR) The significance of a small amount of sugar in the urine. Hamman (L.), Can. Med. Ass. J. (Toronto), 1919, **9**, 961-967.

The author points out the advantage of studying the fasting blood sugar and the blood sugar following a meal rich in carbohydrate in order to distinguish the hyperglycemic from the renal type of glycosuria when only a small amount of sugar is present in the urine. The following test is advised: The blood sugar is determined in the morning after the night fast and the urine is examined. Immediately thereafter 100 grams of glucose are administered in lemonade and one-half hour, one hour and two hours thereafter, the blood sugar is determined and the urine examined for sugar. Normal persons react to this test with a rapid rise in the blood sugar which seldom exceeds 0.14 per cent. The high point is usually reached at the end of one-half hour and the original fasting level after an hour or hour and a half. No sugar appears in the urine.

Patients with a lowered carbohydrate tolerance react with a much higher rise of the blood sugar and the elevation persists much longer. The blood sugar reaches 0.18 per cent or more and remains above the original fasting level for three, four or more hours. When the blood sugar exceeds about 0.17 per cent sugar appears in the urine and continues to be excreted until some time after the blood sugar has fallen below this level.

The mild cases of renal diabetes are characterized by slight and usually transient glycosuria. On the other hand the hyperglycemic diabetics respond to the test not only by excreting sugar in the urine, but by displaying as well a low glucose tolerance. Disturbances of thyroid and hypophyseal function, hypertension, nephritis and diseases of the brain are also accompanied by a mild glycosuria which is of the hyperglycemic type. These conditions must be distinguished from diabetes by the clinical picture and this is not difficult if the physician is aware of their association with hyperglycemia. (See also Endocrin. 1919, **3**, 63.)—L. G. K.

(ENDOCRINE ORGANS) Observation on the frequency of some constitutional diseases in the tropics (Enkele opmerkingen naar aanleiding van de menigvuldigheid van eenige constitutieziekten in de tropen). De Langen (C. D.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63** (ii), 1638.

The author observed that some diseases (diabetes, Graves' disease, hypertrophy of the prostate) are extremely rare in the tropics. Among 422,943 patients he never saw a case of myxedema.—J. K.

(ENDOCRINE ORGANS) Cranio-facial deformities considered as a syndrome of dysfunction of the endocrine glands in children (Les dysmorphoses facio-craniennes considérées comme syndrome du dysfunctionnement des glandes endocrines chez l'enfant). Robin (Pierre), C. R. Soc. de Biol. (Paris), 1920, **83**, 13-15.

The faulty functioning of the endocrine glands may, among other manifestations, alter the form and volume of the bones of the head and face. When we examine subjects of such skeletal alterations we find some trouble with the endocrine glands. If we examine the photographs and radiographs of children attacked by endocrine disturbances, we are struck with the fact that they are all cranio-facial dysmorphics. These deformities cause functional disturbances of respiration, digestion, vision, audition, olfaction and mastication, arrest of development, adenoidism; in short, a more or less pronounced disequilibrium of the psychic and vegetative functions. These react in turn on the endocrine glands, and a vicious circle is established.

The author finds that early treatment of the jaws and dental arches brings about an amelioration of the symptoms and a re-establishment of the biological equilibrium.—T. C. B.

(ENDOCRINE ORGANS) The influence of experimental hypofunction of one or more endocrine glands upon growth processes in very young cats and dogs (Il processo della crescenza nell'ipofunzione di une o piú ghiandole endocrine provocata sperimentalmente nei gatti e cani giovanissimi). Pugliese (A.), Bioch. e terap. sperim. (Milan), 1919, **6,** fasc. 3.

The simultaneous extirpation of one adrenal and one thyroid, with or without splenectomy, does not cause any apparent trouble in adult dogs and cats. The mono-thyro-parathyroidectomy in very young animals favours increase in body weight; this is retarded by the mono-adrenalectomy alone. The simultaneous extirpation of one adrenal and one thyroid is fatal in kittens of less than four months, and a progressive cachexia follows in 80 to 100 days. The bones of such kittens are smaller than those of the controls, and show a diminuation of nitrogenous and fatty substances with increased percentage of ash, Ca, and phosphorus. The same operation, if performed in very young dogs, only retards their growth and diminishes their organic resistance.—(Physiol. Abst. 4, 400.)

(ENDOCRINE ORGANS) The ductless glands in cardivascular diseases and dementia precox. Sajous (C. E. deM.), Med. Rec. (N. Y.), 1917, **91,** 82-84.

A general presentation of the subject is given with special reference to the frequency with which general arteriosclerosis and dementia precox are associated with well-known endocrine disturbances. Attention is called particularly to the occurrence of arteriosclerosis in "hyperadrenia" in which overwork, mental strain and emotional disturbances are said to be the cause. Arteriosclerosis in diabetes and myxodema is suggested to be a possible result of undernutrition in the vessel walls. Abnormal activity of the thymus, the adrenal bodies and the thyroid in dementia precox is spoken of as being of possible causal significance.—I. M.

(ENDOCRINE ORGANS) Osteomalacia, Three cases of (Drei Fälle von Osteomalazia). Steckelmacher, Münch. med. Wchnschr. (Munich), 1919, **66,** 1504.

A report of three typical cases, one of which was cured by the administration of phosphorus and pituitrin; the patient had also been suffering from a goiter, treated by operation. Another case became worse after the removal of the ovaries, which leads

the author to warn against such a procedure in this disease.
—J. K.

(ENDOCRINE ORGANS) Action of tissue extracts on smooth muscle (Action des extraits de tissus animaux sur les organes a fibres musculaires lisses). Stern (L.) and Rothlin (E.), J. Physiol. Path. Gén. (Paris), 1919, **18**, 441-485.

The effects of various tissue extracts on different organs were studied by adding the extract under consideration to horse serum which was being perfused either through the isolated organ or through the entire animal. As a result of their experiments the authors conclude that all the tissue extracts studied and the body fluids in general have the power of constricting blood vessels and of influencing the tonus of various smooth muscle organs.

In the liver two substances exist. One of these increases the tonus of smooth muscle. It is destroyed by alkalis, is soluble in water and in alcohol, insoluble in ether and is dializable. It is not destroyed by boiling or by prolonged exposure to acids. The second substance causes hypotonus of smooth muscle, is soluble in water, slightly soluble in alcohol and insoluble in ether. It resists boiling and the action of alkalis. The kidney contains several substances, some of which cause hypertonus and some hypotonus of smooth muscle. Thyroid extract contains substances producing a diminution in vascular and uterine tonus. It also contains a hypertonic principle differing considerably from the hypertonic substances of the liver and kidney. The lungs contain a hypertonic substance and also an antagonistic substance, analogous to those in the liver extracts. The extract of muscle also contains hypertonic and hypotonic substances which differ physically and chemically from those of the liver. Thymus and bone medulla contain a vasoconstrictor and hypertonic substance apparently the same as that of the liver. The lymphatic ganglia contain a substance producing contraction of blood vessels, except the coronaries, and of other smooth muscle organs independent of their innervation. It exhibits the same physical and chemical properties as the hypertonic substance of liver. The suprarenals are said to contain, besides adrenalin, a substance which produces contraction of the non-pregnant uterus, acting as an antagonist to adrenalin. In the spleen there is found a hypertonic substance producing constriction of the vessels and augmentation of the tone of all smooth muscle. This substance is soluble in water, alcohol and acetone and insoluble in ether, chloroform, benzol, petroleum ether and ligroin. It is thermostable, dializable and resists the action of acids, and of enzymes. It acts as an antagonist to adrenalin when the latter produces relaxation of the tonus of smooth muscle. Bile in high concentration produces vaso-

constriction followed by a dilation and loss of excitability of the vessel walls. Defibrinated blood as well as serum contain, besides vaso-constrictors, hypertonic and hypotonic substances derived in part from the formed elements of the blood and in part for such organs as the suprarenal capsules and the hypophysis.—L. G. K.

(ENDOCRINE-SYMPATHETIC SYSTEM) Clinical study of Paget's disease and the preponderance of lues as the causative agent of the endocrine-sympathetic process (Contribucion clinica al estudio de la enfermedad ósea de James Paget y sobre la preponderancia de la lúes en la etiopatogenia endócrino-simpatico del proceso). Castex (M. R.) and Waldorf (C. P.), La Prensa Med. Argentina (Buenos Aires), 1920, **6**, 233.

A case report the authors of which promulgate the opinion that hereditary syphilis so alters the endocrine-sympathetic system that the disturbance affects osseous morphogenesis.

—B. A. H.

ENDOCRINOLOGY, General Concepts of —; clinical thyroid manifestations; hormonotherapy (Conceptos generales de endocrinología; clínica de los estados tiroideanos, Hormonoterapia). Escuder Núñez (P.), Anales Fac. Med. Univ. (Montevideo), 1919, **4**, 69-110.

Correction of reference in Endocrin. **3**, 511.

ENDOCRINOLOGY in daily practice. Garretson (W. V. P.), N. Y. Med. J., 1920, **111**, 232-235.

The present paper is of much the same trend as one previously abstracted (Endocrin., 1919, **3**, 371).

The author holds that complete extirpation of the tonsils leads to subsequent compensatory hypertrophy of appendiceal tissue and resulting chronic appendicitis. The pituitary type of headache invariably associated with tonsil or appendiceal inflammation, and following extirpation of one or both of these organs, is due to a compensatory enlargement of the hypophysis. In all so-called shock states the existing condition is vagotonia due to hypoadrenia. Relief is attained by giving atropine, or better, by administering adrenalin. The suprarenal glands bear the brunt of all toxic assaults upon the body, either of endogenous or exogenous origin. The familiar exhaustion states following infectious diseases (influenza) are classical demonstrations of vagotonia due to hypoadrenia.—H. W.

(GENERAL) The interrelationship of menstruation, hair color, and libido (Ueber Menstruation, Haärfärbung und Libido und ihre gegenseitigen Beziehungen). Heyn (A.), Ztschr. f. Geburtsh. u. Gynäk. (Stuttgart), 1919, **82,** 136-152.

An extensive statistical study of the relations existing between the age of incidence, duration, and molimina or menstruation and social position, place of residence, color of hair, degree of hairiness and libido. The details are too intricate to be compiled in an abstract.—F. S. H.

(GENERAL) The biology of old age (Sulla biologia della vecchiaia). Scala (Guglielmo), La Riforma Medica (Naples), 1919, **35**, 813.

From an endocrine point of view Scala postulates three stages in human life, namely, childhood, puberty and old age. From 25 to 35 there is a complete balance of the "vagotonic" and sympathicotonic hormones; after this period there is vagotony for a while, then, in old age, even the "vagotonic hormones" give way. It is not only that the endocrine glands in common with other organs are approaching decay, but, according to Richter and Galdi, early senescence and physiologic old age correspond to a pluriglandular syndrome manifested by such conditions as increasing connective tissue and fat distribution resembling that in eunucoidism. Furthermore, with the dysfunction of the skin, too much strain is laid on the kidneys with consequent impairment of the same. With diminished efficiency of the cerebrospinal and sympathetic nervous systems there is a degree of failure in organic correlation, hence, as Canstatt observes, in old people the individual organs may undergo disease more or less independently, as though they were isolated from the rest of the organism.—G. V.

(GENERAL) Diagnosis of the lesions of the nervous system produced by violent explosions in close proximity without external lesions. Williams (T. A.), Boston M. and S. J., 1920, **182,** 27-34.

Refers to endocrine factors only as a means of differentiation of lesions of the nervous system.—H. W.

GIGANTISM, Notes on a case of pre-adolescent—. MacPherson (J.), N. Zealand Med. J. (Wellington), 1918, **17,** 203-207.

Report of a case of gigantism accompanied by low-grade imbecility.—F. S. H.

GLYCOSURIA, Some unusual cases of—. Brown (W. L.), Clin. J. (London), 1916, **45,** 29-36.

Several types of glycosuria are discussed with illustrative cases. These are: 1, glycosuria with hypoglycemia or renal glycosuria; 2, pancreatic glycosuria due to a deficiency of this gland; 3, pituitary glycosuria and, 4, thyroid glycosuria, the last two types being due to hypersecretion. For the treatment of diabetes the author recommends the practice of determining the carbohydrate tolerance of each case and then selecting a carefully balanced diet including the proper amount of carbohydrate. Alkalis and a small quantity of alcohol in the form of whiskey are also advised.—I. M.

GLYCOSURIA, Injury and malingering. Collie (Sir J.), Med. Press. and Circ. (London), N. S., 1916, **102,** 425.

The medico-legal aspects of glycosuria following accidents is discussed by the author, who questions the likelihood of a permanent glycosuria resulting from injury. Attention is called to the frequency with which malingering is practiced by patients following accidents in the industries. Means for its detection, such as finding cane sugar or excessive amounts of lactose in the urine, are suggested.—I. M.

GLYCOSURIA from the military point of view (Les glycuries au point de vue militaire). Derrien (E.), Montpelier Médical, 1917, **39,** 550-554.

A brief description of the various possible causes of glycosuria which points out that emotional states are to be taken into consideration before rejections for military service on the basis of sugar in the urine.—F. S. H.

(GONADS) On the cause of pseudohermaphroditism (Over de oorzaak van pseudohrmaphroditisme). van der Broek (A. J. G.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63** (ii), 1625.

An interesting article. When in pregnancy the child "in utero" is a girl, the hormones of the ovary of the mother come into the blood of the child. The ovary of the child itself has probably an internal secretion; so these two secretions will increase each other. If the child, however, is a boy, mother and child together form an organism that may be compared to the animals of Steinach with one ovary and one testicle. The influence of the ovary is the more important; therefore, at birth boys have some of the female characteristics (large breast, producing milk). After birth the influence of the ovary ceases and the breasts become again smaller. If in a pregnant woman the ovary shows an increased function, this will have an influence on the child, when it is a girl. When it is a boy the quantity

of ovarian hormone will be too great; the equilibrium between ovary and testis is broken, the influence of the testicle diminished and the result may be male psendohermaphroditism. A diminished function of the ovary in pregnancy will have an influence on a boy; on a girl it would be possible (but this has not yet been made probable) that when the ovary of the child is not or not enough supported by the ovary of the mother, the Wolffian duct develops. Then female pseudohermaphroditism occurs. These last statements are very theoretical; perhaps they explain why male pseudohermaphroditism is much more frequently seen than the female form.—J. K.

(GONADS) On the existence of a secretion of the epididymis of the hibernating bat and its significance (Sur l'existence d'une sécrétion épididymaire chez la chauvesouris hibernante et sa signification). Courrier (M. R.), C. R. Soc. de Biol. (Paris), 1920, **83**, 67-69.

In the bat, during hibernation and after the arrest of spermatogenesis, there exists a considerable mass of sperm contained in the tail of the epididymis, and an intense glandular secretion from the cells of the initial part of the epididymal canal. The region distal to the canal is therefore transformed into a reservoir for the sperm, while the proximal region is differentiated into a glandular organ the products of which mix with the living sperm contained in the subjacent zone of the same canal. The cells of the epididymis are described in their various stages of secretion, and Henry's opinion that this secretion serves to nourish the sperm in its passage through the canal, is confirmed. It is also suggested that the glandular activity of the epididymis is conditioned by the secretion from the interstitial (endocrine) gland. Experimental proof will be given later.—T. C. B.

(GONADS) A case of gynecomastia following unilateral traumatism of the scrotum (Un cas de gynécomastie unilatérale consécutive á un traumatisme des bourses). Decléty (J.), Thése de Paris, 1919. Abst. Presse Méd., **27**, 772.

Mammary hypertrophy in the human male is rare. It may be unilateral or bilateral. The latter, Decléty states, is always secondary to a testicular defect, inherited or acquired, and most often, to trauma. The breast hypertrophy is usually on the same side as the injured testicle. The case is described of a young man of 25 in whom unilateral right-sided gynecomastia developed following a wound of the scrotum. The breast was removed surgically. Histological examination showed a pure hypertrophy of the gland; the sections were comparable to those

from the breast of a normal young nulliparous woman with manifest activation of the epithelium (Letulle). In explanation of the phenomenon the author advances the following theory: There develops in the testicle at the time of puberty a hormone which stimulates mammary growth. The later, more complete functioning of the testicle inhibits the action of this hormone, apparently by means of reflex action originating in the gonad. Pathological conditions in the testicle may suppress this reflex function, permitting free play of the growth hormone and leading to gynecomastia. This explanation accounts for its unilateral manifestation.—R. G. H.

(GONADS) Historical remarks on experimental hermaphroditism (Historischer Beitrag zur experimenteller Hermaphroditismus). Foges (A.), Zentralbl f. Gynaek. (Leipzig), 1920, **44**, 87.

A review of the historical development of this line of experimentation. It is pointed out that Hunter as early as 1780 reported gonad transplantations.—J. K.

(GONADS HYPOPHYSIS) The effects of inanition in the young upon the ultimate size of the body and of the organs in the albino rat. Jackson (C. M.) and Stewart (C. A.), J. Exp. Zool. (Phila.), 1920, **30**, —.

Rats were underfed from birth to 3, 6, or 10 weeks and from 3 weeks of age to 20 weeks or 1 year, and were then given a full diet for a time and autopsied. Those starved a long time were permanently stunted. The hypophysis and ovaries failed to regain their normal weight but the testes were somewhat overdeveloped.—E. R. H.

(GONADS) The innervation of the gonads in the dog. Kuntz (A.), Anat. Rec. (Phila.), 1919, **17**, —.

The nerves follow the ovarian and spermatic arteries, and are derived mostly from inferior mesenteric ganglia. There is no evidence that the interstitial cells receive any innervation, especially since cutting the nerves to the testis results in overgrowth of interstitial cells as the germinal cells degenerate.
—E. R. H.

(GONADS) Case of pseudohermaphroditism. Méndez S (Martin), Repertorio de Medicina y Cirugía (Bogota), 1919, **11**, 68-71.

Mendez gives an illustrated description of another instance of blunder in sex, the androgynoid being unmistakably of male sex, although baptized and brought up as a girl.—J. Am. M. Ass.

(GONADS) Experiments on the internal secretion of the sexual glands, especially on experimental hermaphroditism. Sand (Knud), J. Physiol. (Lond.), 1919, **53**, 257-263.

Steinach's results are confirmed. Also, hermaphroditism has been produced by the formation of artificial ovario-testes by a special technique, placing the ovaries in the middle of the testes and leaving the latter in place. The ovary grows easily into the testicular tissue, and is able to develop and form corpora lutea. The testes develop to perfect spermatogenesis, the gonads of different sex thriving in intimate union, apart from traumatic injury. Sand thinks this points more to an immunity of the normal organism to the heterologous gland, rather than to an "antagonism," as suggested by Steinach.—T. C. B.

(GONADS) The specific antagonistic sex-gland action before and after puberty (Die antagonistich-geschlechtsspezifische Wirkung der Sexualhormone vor und nach der Pubertät). Steinach (E.), Kaisl. Akad. der Wissenchft. (Vienna), 1919, No. 36.

The sexual glands produce certain hormones which are antagonistic in action to the effects of the sexual glands of the opposite sex. This is shown by the apparent inhibition of the taking of the graft of implanted heterologous sex glands when the glands of the host are still present, and the prevention of the development of the secondary sexual characteristics of the host on successful implantation. The transplantation of the ovary into cats causes the feminization of the animals whether male or female. These results can be obtained either before or after puberty. Lichtenstern has observed that implantation of cryptorchic testicles into men wounded in the war or into individuals having lesions of these glands seemed to cause a reappearance of the morphological, functional, and psychic characteristics of the male sex. In one case the results lasted over three years. And in one case of transplantation after four years of eunuchism because of tuberculosis of the testicles, there was a return of the hair, musculature and virile potency. In an infantile case masculine characters developed after implantation of a graft.—B. A. H.

(GONADS) Artificial hermaphroditic glands in mammals and birds (Künstliche Zwitterdrüsen bei Säugern und Vogeln). Steinach (E.), Kaisl. Akad. der Wissenschft. (Vienna), 1919, No. 37.

In spite of the antagonism of the heterologous sexual glands it is possible to obtain hermaphroditism in rats and guinea pigs.

The result, however, depends on the amount of active tissue in each gland and on the period when the transplanation is made. The animals may take the characteristics of both sexes; e. g., females may take on the skeletal growth of the male.—B. A. H.

(GONADS) Experimental and histological proof of the presence of a causative relationship between homosexuality and hermaphroditic sex glands (Experimentelle und histologische Beweise für den ursachlichen Zusammenhang von Homosexualität und Zwitterdüse). Steinach (E.), Kaisl. Akad. der Wissenschft. (Vienna), 1919, No. 38.

The author observed that when crossed testicular implantation was done there frequently occurred in man an induced homosexuality which was usually but not always permanent. In animals, however, this perversion of sex was periodic and now one type would become evident and then the other.—B. A. H.

(GONADS) Histological properties of the generative glands in human homosexuals (Histologische Beschaffenheit der Keimdrüse bei homosexuallen Männern). Steinach (E.), Kaisl. Akad. der Wissenschft. (Vienna), 1919, No. 39.

This is a report of a study of the testicles of six men who were homosexual, the material in the majority of cases being obtained at autopsy. There was found evidence of degenerative changes regardless of age, a restricted number of the seminiferous canals, the aspect as a whole resembling that of the cryptorchic testicles. There were present large cells, having abundant protoplasm, a clear nucleus, and some chromatin, resembling corpus luteum cells.—B. A. H.

(GONADS THYROID HYPOPHYSIS) Dwarfism (Uber Zwergewuchs). Sternberg, Münch. med. Wchnschr. (Munich), 1920, **67,** 59.

Although many cases of dwarfism are of hypophyseal origin there are cases that are caused by diseases of the gonads or the thyroid. The author examined post-mortem a tubercular dwarf of 17 years in whom no secondary sexual characteristics had developed. The testicles were atrophic and the hypophysis small but apparently normal in structure.—J. K.

HORMONES and hormone therapy. Caldwell (J. E.), J. Florida M. Ass. (Jacksonville), 1916, **3,** 161-165.

A general discussion of the topic.—R. G. H.

(HYPOPHYSIS) Histamine and pituitary extract. Abel (J. J.) and Macht (D. I.), J. Phar. & Exp. Therap. (Balt.), 1919, **14**, 279-293.

Abel and Macht report that the uteri of both mice and guinea pigs respond readily to small and comparable doses of both pituitary extract and histamine salts, the uterus of the guinea pig being the more sensitive to minute doses. Both tracts of plain muscle are easily paralyzed by concentrated doses of pituitary extract and of histamine salts.—F. F.

(HYPOPHYSIS) The decomposition of the oxytocic principle of pituitary solution. Adams (H. S.), J. Biol. Chem. (Balt.), 1917, **30**, 235-242.

An extended study of the effect of heating on the stability of the uterine-contracting factor in pituitary extracts brought out the fact that this constituent is rapidly destroyed at the temperature of boiling water when the H-ion concentration of the solution is of the order of 10^{-5}. The rate of destruction indicates that a single substance is being destroyed and that the valuation of pituitary solution by the isolated uterus method consists in the measurement of a single substance. There is no evidence that this does not constitute an adequate measure of the clinical oxytocic value. It is possible, however, that the substance measured may not be concerned in the characteristic pressor effect of pituitary solution. Oxygen does not seem to be concerned in this destruction of the active principle which apparently is determined by the H-ion concentration since in an $Nx10^{-3}$ concentration there is no destruction at the temperature of boiling water.—F. S. H.

HYPOPHYSIS surgery (Chirurgia ipofisaria). Aievoli (E.), La Riforma Medica (Naples), 1919, **35**, **1080.**

The article is a review of the surgery of the hypophysis with special reference to the endonasal and the transsphenoidal methods of approach, especially the method of Hirsch.—G. V.

(HYPOPHYSIS) Entotic aural bruit, audible on oscultation of the head, due to a tumor of the pituitary region. Alexander (L. D.), Ann. Otol., Rhinol. & Laryngol. (St. Louis), 1916, **25**, 735-737.

A case report, the salient features of which are indicated in the caption. The patient had diplopia and contracted visual fields. The diagnosis of hypophyseal tumor was supported by the appearance in the roentgenogram of an enlarged and probably eroded sella turcica.—R. G. H.

(HYPOPHYSIS) Le diabéte insipide et son origine hypophysaire. Anon., Presse Méd. (Paris), 1919, **27,** 746-747.

A review of some of the literature of recent years emphasizing the value of hypophyseal extract in the treatment of diabetes insipidus.—R. G. H.

(HYPOPHYSIS) Some observations on the action of pituitary extract. Bandler (S. W.), Med. Rec. (N. Y.), 1916, **89,** 300.

The various uses to which pituitary extract is put are discussed. The author has found the drug of value in stimulating intestinal peristalsis in post-operative cases in which symptoms simulating intestinal paresis are found and as an aid to moving the bowels with cathartics or by enemata. In cases of atonic bladder, the use of the catheter is said to be preferable. Cases of menorrhagia in young girls, in which currettage and other surgical procedures are not advisable for any reason, are often relieved by repeated administration of the posterior lobe extract. In addition to its ordinary use in obstetrics, it is employed with great advantage by the author to prevent excessive bleeding and to facilitate closing the uterine incision wound in caesarian section.—I. M.

(HYPOPHYSIS) A case of acromegaly. Barr (H. W.), N. Y. Med. J., 1920, **111,** 248-250.

Report of a case of acromegaly in a middle grade imbecilic male who died of hemorrhages from a neoplasm of the upper respiratory tract.—H. W.

(HYPOPHYSIS) Deficiency of the pituitary body. Barrett (Lady), Lancet (Lond.), 1919, (i), 465.

The patient, a girl of 19, had primary amenorrhoea, and on examination was found to have a very small, undeveloped uterus. She had no thyroid deficiency, and was well developed except in the size of the skull. The circumference was 19 inches, the occipito-frontal measurement, 6½ inches and the transverse, 5 inches. A skiagram showed a very small pituitary fossa, with the anterior part especially underveloped.—L. G. K.

(HYPOPHYSIS) Posterior lobe of the pituitary body and its use in obstetrics. Bear (J.), Virginia M. Semi-month. (Richmond), 1917, **22,** 65.

A brief description of the anatomy and function of the hypophysis is given, followed by a statement as to the use of extract of the posterior lobe in therapeutics and conditions in which it is contraindicated. Nothing new.—I. M.

(HYPOPHYSIS) Giant formation in larynx accompanying hypophyseal trouble. Beck (Joseph C.), Ann. Otol., Rhinol & Laryngol. (St. Louis), 1916, **25**, 790.

A brief case report of acromegaly in a man of 65. He had hemianopsia and the x-ray plate indicated destruction of the sella turcica. The "giant formation" referred to was a neoplastic mass in the larynx. It appeared to be due to hypertrophy of the mucosa. It was regarded by the author as a manifestation of an acromegalic tendency.—R. G. H.

(HYPOPHYSIS) The therapeutic future of the anterior lobe of the pituitary gland (L'avenir du lobe anterieur de la glande pituitaire en therapeutique). Barnard (A.), Rev. Internat. de med. et de chir. (Paris), 1917, **28**, 80-83.

A review of the results obtained in testing the properties of the active principle of the anterior lobe of the hypophysis and a prophecy that such extracts will be used in promoting growth at certain periods, in stimulating epidermal growth of wounds and in the treatment of exopthalmic goitre and epilepsy.
—F. S. H.

(HYPOPHYSIS) Acute suppurative hypophysitis as a complication of purulent sphenoidal sinusitis. Boggs (T. R.) and Winternitz (M. C.), Johns Hopk. Hosp. Rep. (Balt.), 1919, **18**, 56-61.

So far as the authors were able to learn, this is the first case of acute inflammation localized in the hypophysis that has been recorded. A white woman of 43 complained of intense stiffness and soreness of the neck muscles, headache, pain back of the eyes and tenderness over the scalp. She had been robust and active but had had every month dysmenorrhea accompanied by severe frontal headaches. She developed fever and continuing headache and finally coma. At the time of her death her temperature was 108.5°. Autopsy was performed shortly after death. The most striking conditions found are indicated in the caption of the article. The hypophysis was removed with difficulty on account of marked friability and extensive red granulations obscuring its demarcations. The anterior lobe was large and its engorged blood vessels contained numerous leucocytes. The cells at the periphery were not infrequently separated from their basement membrane. An infarct occupying from 1/6 to 1/2 of the anterior lobe area was found. The pars intermedia appeared to contain colloid in normal amount, but the cells were not well preserved. Large portions of the posterior lobe were necrotic. In the pancreas the Langerhans islands were made out with difficulty. The adrenals appeared

to be normal. The condition of other endocrine organs was not reported. That there may have been other endocrine disturbances, however, is indicated by the fact that both hyperglycemia and glycosuria were observed in the symptomatology.
—R. G. H.

(HYPOPHYSIS) Club fingers as acromegalic manifestations (Ueber Trommelschlagelfinger als akromegalische Veränderungen). Braum (L.), Med. Klin. (Berl.), 1918, **14**, 3-37; Abst., La Pediatria, 1920, —, 101.

These fingers are found whenever there are long lasting lesions of the lungs; the osteoartropathy of P. Marie shows the same symptoms, but referable to osseous formation, while the lung cases, where other acromegalic symptoms co-exist, can be referred to a hypophyseal dysfunction, secondary to the lung trouble.—G. V.

(HYPOPHYSIS) The development of the glandular portion of the human hypophysis (Sullo sviluppo della porzione ghiandolare dell'ipofisi nell' uomo). Bruni (A. C.), Arch. Ital. Anat. e Embryol. (Firenze), 1917, **15**, 139-192.

The hypophysis is described in embryos of 7, 11, 14, 15, 16, 17, 20, and 28 mm. It arises from four parts of the pharyngo-oral epithelium (ectoderm and entoderm), namely, the anterior cavity of Woerdeman, the pouch of Rathke, the median diverticulum and the pouch of Seessel. These four regions together form the pharyngo-hypophyseal diverticulum from which the glandular portion of the hypophysis arises. This ultimately forms the intermediate lobe and the principal lobe which is subdivided into the body, the chiasmatic lobule and the medial and lateral processes. The pharyngo-hypophyseal diverticulum also forms the pharyngeal (vestigeal) hypophysis. It is now rather generally believed that the entoderm (Bruni to the contrary) does not enter into the formation of the human hypophysis.
—E. R. H.

(HYPOPHYSIS) Dystrophia adiposogenitalis of hypophyseal origin (Distrofia adiposo-genital hipofisaria). Casas (A.), La Semana Medica (Buenos Aires), 1919, —, 728.

A typical case is reported. On surgical interference a glioma of the pituitary was found. Pluriglandular therapy gave some slight degree of relief.—B. A. H.

HYPOPHYSIS, Two cases of tumor of the—with acromegalic syndrome treated with X-rays (Due casi di tumore dell'ipofisi

con sindrome acromegalica, curati con i raggi X). Cavazzeni-Bergamo (S.), La Riforma Medica, 1920, —, 162.

Two cases are reported, a man and a woman; both had depressed vision, hemianopsia, headaches, vertigo, acromegalic facies and physical and psychic weakness. The sella turcica was enlarged in both cases. With X-ray treatments both were very much benefited as regards vision and physical strength. The A. employed Beclere's method,—deep radiotherapy through the two temporal and frontal regions, first every week, later less frequently.—G. V.

(HYPOPHYSIS) The hypophysis cerebri of the California ground-squirrel Citellus beechii (Richardson). Cooper (H. J.), Am. J. Anat. (Phila.), 1919, **26**, 185-208.

The cytology of the gland indicates to the author that the various cells in the glandular part of the hypophysis represent different stages of the same type of cell, as has been reported previously by other authors.—E. R. H.

(HYPOPHYSIS) Diabetes insipidus and its hypophyseal origin (Il diabete inspido e la sua origine ipofisaria). Costagli, Rivista critica di Clin. Med. (Firenze), 1919, **20**, 571.

Costagli subscribes to the causative effect, in diabetes insipidus, of lesions of the hypophysis and to the benefit secured by hypophyseal treatment. The mechanism of the syndrome, he believes, however, has not yet been demonstrated. Camus and Roussy found that after removal of the hypophysis in dogs, pituitary treatment did not improve the syndrome of diabetes insipidus and it was inferred that the essential factor might be a lesion of the adjacent zone of the brain. No proof has yet been offered. In the author's opinion, pituitrin constitutes a genuine hormone. It is possible that merely by reducing the size of the hypophysis it seems to improve conditions brought about by compression. In this connection, it is known that lumbar puncture can temporarily diminish the polyuria.

—G. V.

(HYPOPHYSIS) Histamine and pituitary extract. Cow (Douglas), J. Pharm. & Exp. Therap. (Balt.), 1919, **14**, 275-277.

Cow found that while pituitary extract greatly stimulated the mouse uterus, histamine produced paralysis. These observations led him to conclude that histamine and the plain-muscle-stimulating principle of the posterior lobe are not identical.

—F. F.

(HYPOPHYSIS) Some observations on the active principles of the pituitary gland. Dudley (H. W.), J. Pharm. & Exp. Therap. (Balt.), 1919, **14**, 295-312.

By extraction of powdered, desiccated, fat-free posterior lobes of the pituitary body with acidulated water, treatment of the solution with collodial ferric hydro-oxide and subsequent continuous extraction of the filtrate with butyl alcohol at reduced pressure and final evaporation of the alcohol, Dudley obtained a crystalline residue containing all the uterine stimulant of the posterior lobe together with some of the pressor principle and impurities ("contaminating substances") such as amino acids, etc. The comparison between the behavior of this residue and of histamine toward solubility in butyl alcohol and chloroform, alkalies, and tryptic hydrolysis leads the author to conclude that the uterine stimulant of the posterior lobe and histamine are not identical, but are two distinct chemical substances. No description of the crystals or analytical data to establish their constitution, are furnished.—F. F.

(HYPOPHYSIS) Concerning the U. S. P. standard for pituitary extract (Liquor Hypophysis). Eckler (C. R.), Am. J. Pharm. (Phila.), 1917, **89**, 195-202.

A general description of the writer's method of testing the strength of liquor hypophysis and a plea for the raising of the U. S. P. requirement so that it will coincide with the strength of the ordinary commercial product, which he usually found to be ten times as strong as the U. S. P. standard.—F. S. H.

(HYPOPHYSIS) Influence of pituitary extracts on the genital tract. Frank (R. T.), J. Am. M. Assn. (Chgo.), 1919, **73**, 1764.

Six litters of three weeks' old white rats, were fed for 35 days with extracts of anterior lobe of the pituitary gland. At necropsy all animals showed increase in size or weight or in the genital organs. Certain rats, some of them the controls, showed greater increase in weight, the presence of corpora lutea in the ovaries and enlargement of the internal genitals. However, Frank does not believe this growth was due to the pituitary feeding and believes that more extended experimentation is necessary before the extracts of anterior lobe of pituitary gland can be used with assurance of efficacy.—F. C. P.

(HYPOPHYSIS THYROID) Metastatic deposits in the pituitary body from carcinoma of the thyroid, causing bilateral opthalmoplegia. Haman (C. A.), Cleveland Med. J., 1916, **15**, 225-226.

A report of a case diagnosed as pituitary lesion because of corneal anesthesia, opthalmoplegia and hemianopsia accompanying carcinoma of the thyroid. At autopsy the sella turcica was found to be filled with a tumor mass seemingly continuous with, and inseparable from, the pituitary body. Histologically, the growth was a cuboidal-celled carcinoma. There were no other metastases in the cranial cavity.—F. S. H.

(HYPOPHYSIS) Multiple hemangiomas of the skin associated with dyspituitarism. Head (G. D.), Arch. Int. Med. (Chgo.), 1917, **20,** 24-31.

An extensive report accompanied by color photographs of two cases of multiple hemangiomas of the skin associated with clinical manifestations of pituitary gland changes. In case 1, the skin of the scrotum, penis, inside of the thighs, arms, back and abdomen was affected. In case 2, the skin of the scrotum and the mucous membranes of the lips and mouth were involved.—F. S. H.

HYPOPHYSIS substance, Treatment of amenorrhea with—(Über die Verwendung von Hypophysensubstanzen bei der Behandlung der Amennorrhoe). Hofstätter (R.), Zentralbl f. Gynaek. (Leipzig), 1920, **44,** 68.

Good results are here reported from the administration of pituitary preparations in cases of amenorrhea accompanied by uterine and ovarian hypoplasia.—J. K.

(HYPOPHYSIS) Functional diagnosis of polyglandular disease in acromegaly and other disturbances of the hypophysis. Howard (C. P.), Am. J. Med. Soc. (Phila.), 1919, **158,** 830-839.

A brief summary of three cases of acromegaly, two cases of dystrophia adiposo-genitalis, and one of brain tumor with flattening of the pituitary body from increased intracranial pressure. The author reports in detail the results of tests for sugar tolerance, conjunctival and subcutaneous adrenalin tests and conjunctival and subcutaneous pituitrin tests. He concludes that a secondary hyperpituitarism may result from a greatly increased or rapidly increasing intracranial pressure; that a decrease in sugar tolerance in the presence of other symptoms of pituitary disturbance justifies a diagnosis of increased activity of the pars intermedia; the conjunctival adrenalin test may be of positive value in certain cases of dyspituitarism in demonstrating hypofunction of the chromaffin system; the subcutaneous adrenalin test is of doubtful value in both normal and pathological cases; the conjuntival and subcutaneous

pituitrin tests are of doubtful value in studying the functional activity of the hypophysis. The internal administration of pituitary extract, either the whole gland or the anterior or the posterior lobes, appears to exert no definite influence.—F. C. P.

(HYPOPHYSIS) Roentgen-ray treatment of pituitary tumors (Contribution nouvelle a la radiothérapie des tumeurs hypophysaires).. Jaugeas (M.), Journal de Radiologie et d'Electrologie (Paris), 1919, **3**, 508-516.

The death of Jaugeas was reported recently. He said in this article that the action of the roentgen rays can be estimated with greater precision in the effect on a tumor in the hypophysis region than in any other field of application of deep irradiation. The changes in the visual field parallel the benefit otherwise, and form a gage for the efficacy of the treatment. He describes a case of tumor in the pituitary with acromegaly in a woman of 25. The history of the case is shown by the charts of the field of vision at one and two-year intervals, the visual acuteness finally approximating normal. Similar findings in another case rayed in 1914 show that the benefit has been permanent, so that the term "cure" is not out of place applied to such cases. The visual acuity is even better now, five years later, than when the patient was first dismissed. The acromegaly has not retrogressed, but it was arrested. Roentgen-ray treatment in these cases has to be applied early, when symptoms of hyperactivity become manifest, before the elements of the gland are destroyed. The raying must be cautious, to refrain from destroying the functional elements, as otherwise symptoms of deficiency would follow, analogous to experiences with the thyroid. The pulse in exophthalmic goiter and the visual field with pituitary tumors should be the guide to treatment. It should be suspended when these findings enter a stationary phase. It can be resumed if headache and impairment of vision indicate a new "poussée évolutive." The exposures should thus be given and suspended according to the individual findings from week to week, without any arbitrary regularity.

—J. Am. M. Assn.

(HYPOPHYSIS) The pharmacology of drugs used in parturition (Die Pharmakologie der Wehenmittel). Joachimoglu (G.), Monatschr. f. Geburtsh. u. Gynäk. (Berlin), 1919, **50**, 453-460.

A review of the pharmacology of the various preparations used in parturition.—F. S. H.

(HYPOPHYSIS) Clinical and surgical remarks on tumors of the hypophysis (Consideraciones clinico-quirúrgicas sobre

tumores de la hipófisis). Jorge (J. M.) and Natale (A.), Comm. del Hosp. oftalmól. (Buenos Aires), 1919, **2,** 45.

Six clinical reports of tumors of the hypophysis, three of which were operated upon with improvement of the sight. Relapse occurred in one case.—B. A. H.

HYPOPHYSIS, On the pathogenesis of acromegaly and the relation between this disease and anomaly of the—. Kamo (K.), Bull. Nav. Med. Assn. (Tokyo), 1916, **No. 13,** 6-8.

A case of typical acromegaly investigated pathologically is described. An adenomatous tumor, consisting chiefly of peculiar eosinophilic cells which differ morphologically from the normal eosinophiles of the hyhophysis, is described in connection with a small pit. The latter corresponds to the remains of the embryological canalis craniopharyngeus. The author believes that the tumor had sprung from the germs of the hyhophysis, remaining with the canalis rest, and that acromegaly is due to hyperfunction of the special eosinophilic cells. The intact normal testicles in this case contradict the hypogenital theory of the development of hypophyseal adenoma as the cause of acromegaly.—I. M.

(HYPOPHYSIS ADRENAL) The pathogenesis of deficiency disease. II. The effects of deprivation of "B" accessory food factors. McCarrison (Robert), Indian J. Med Res. (Calcutta), 1919, **6,** 550-556.

Food-deficiency experiments were carried out on pigeons in which the "B" factor only was withdrawn. The diet consisted of autoclaved rice plus butter and onions. It was found that the morbid state resulting from deprivation of this class of food resembled very closely that resulting from complete vitamine starvation but was less often associated with oedema. Unmilled rice, like butter and onions, appears to contain some factor which tends to prevent the onset of edema. Avian beriberi seems to depend upon the absence of two food factors: (a) the so-called antineuritic factor, and, (b) the anti-edema factor. The brain, the adrenals and the hyhophysis are very sensitive to vitamine influences in the food. These increase, whereas most of the other organs diminish in size.—I. M.

(HYPOPHYSIS TESTES) Akromegalie kombiniert mit Diabetes. Machwitz, Münchener med. Wchnschr., 1920,**67,** 198.

Report of a man of 46 years; his acromegaly began when he was 22. Gradually symptoms of diabetes developed; glycosuria showed some relation to the amount of carbohydrates in

the food. There developed marked atrophy of the gonads. The patient has a son of 18 years with acromegaly.—J. K .

(HYPOPHYSIS) Pituitary extract in obstetrics and other cases. Measham (J. E.), Univ. Durham Coll. Gaz. (Newcastle), 1916-17, **17,** 42-44.

Fourteen cases are reported in which the use of pituitrin was followed by gratifying results. These included post-partum hemorrhage, uterine inertia and delayed retraction of the uterus. In a man pituitrin was used after a hemorrhoid operation to avoid the necessity of painful catheterization. Free micturition was established. Similar results occurred after an operation for anal fissure, followed by atony of the bladder. In another case a gun-shot lesion of the spinal cord was followed by atony of the bowel, leading to stubborn constipation. This was promptly and completely relieved by pituitrin. In a second, less severe case, pituitrin proved useless. In nine cases of collapse following trauma, saline solution containing 1 cc. of pituitrin to the pint was administered intravenously. The author was convinced that the restorative effect was materially greater than could have been expected from the saline solution alone.—R. G. H.

(HYPOPHYSIS) Cure of hypophyseal form of congenital lues by combined antisyphilitic and organotherapeutic treatment [Ueber Heilung der hypophysären Form der Lues congenita (Lues congenita pituitaria) durch kombinierte antisyphilitische und Organ-Therapie]. Nonne (M.), Neurol. Centralbl. (Leipzig), 1918, **37,** 194-197.

Nonne reports a case of a boy of 16 years with infantilism, physical and psychic, and with feminism and polyuria. The treatment with mercury and iodides and hypophysin tablets produced development of the genitalia and pubic hair and checked the polyuria.—G. V .

(HYPOPHYSIS) Zur Lehre vom Diabetes insipidus. Oehme, Med. Klin. (Berl.), 1918, **14,** 749; Berl. klin. Wchnschr, 1918, **55,** 798; Deutsche Med. Wchnschr. (Berl.), 1918, **44,** 1037.

See Endocrin. **2,** 496.

HYPOPHYSIS, A case of sarcoma in the region of the—. Owen (S. A.), West. Lond. M. J. (London), 1916, **21,** 138-140.

A case of sarcoma of the hyphophysis cerebri with post-mortem findings is reported.—I. M.

(HYPOPHYSIS) A case of dwarfism of Paltauf's type (Dwerggroli van Paltauf). de Monchy (L. B.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1920, **64** (i), 605.

A case is reported the symptoms of which are the opposite of acromegaly, the parts usually exhibiting the acromegalic enlargement being small in this form of dwarfism. The injection of 0.1 mgm. of adrenalin caused glycosuria. The disorder is attributed to a probable diminution of hypophyseal function.

—J. K.

(HYPOPHYSIS) The development of the hypophysis cerebri pre-oral gut, and related structures in the Marsupialia. Parker (K. M.), J. Anat. (Lond.), 1917, **51**, 181.

Several species are described. The notochord does not aid in the formation of the hypophysis. In most cases Seessel's pouch degenerates early, but in some it forms a small part of the hypophysis. Rathke's pouch develops from ectoderm. It grows up over the entoderm of the oral cavity and comes to lie under the diencephalon where it gives rise to the glandular part of the hypophysis in contact with the neural lobe. The glandular portion is subdivided into pars juxtaneuralis and pars distalis or anterior. The former is again subdivided into a pars tuberalis surrounding the stalk and a pars infundibularis in contact with the neural lobe and separated from the rest of the glandular portion of the hypophysis by the lumen.

The histological differentiation of the anterior lobe occurred in the later stages studied (9 to 13 mm.) where there were seen chromophobic and chromophilic cells. These both develop from ectoderm and not one from entoderm and the other from ectodern as claimed by Miller.

The pars neuralis is formed by a simple down-pouching in the floor of the diencephalon.—E. R. H.

(HYPOPHYSIS) Hypophyseal adiposity in children (Kinder mit hypophysärer Adipositas). Peritz, Münch. med. Wchnschr. (Munich), 1920, 67, 141.

It is the opinion of the author that many cases of hypophyseal adiposity in children are caused by a syphilitic hydrocephalus. An increase in the blood sugar can always be demonstrated.—J. K.

(HYPOPHYSIS) Diagnosis of pituitary tumor. Potts (J. B.), Nebraska M. J. (Omaha), 1916, **1**, 52-54.

A brief article discussing the physiology and functional pathology of the hypophysis and reporting four cases in which the gland was surgically removed.—R. G. H.

(HYPOPHYSIS) Raynaud's disease (Rainaudsche Krankheit). Pribram, Deutsche med. Wchnschr. (Berlin), 1920, **46,** 87; Münch. med. Wchnschr. (Vienna), 1920, **67,** 27.

A case report of a classical example of Raynaud's disease accompanied by no evidence of acromegaly but showing an enlarged sella turcica on X-ray examination.—J. K.

(HYPOPHYSIS) Hypophyseal dwarfism (Über hypophysärem Zwergwuchs). Priesel, Münch. med. Wchnschr. (Munich), 1920, **67,** 59.

There are two forms of hypophyseal dwarfism, the primordial form in which the individual is subnormal at birth and develops symmetrically, though remaining a dwarf, and the infantile form in which the birth size is normal as is the growth during the first years. In this latter form, however, the growth becomes retarded between the fifth and fifteenth years. The case reported is one of a dwarf of 90 years with an "abnormal" neurohypophysis and sphenoidal sinus.—J. K.

(HYPOPHYSIS THYMUS) Diabetes insipidus. Richter (G.), J. Missouri Med. Assn. (St. Louis), 1916, **13,** 308-313.

An interesting report of a case of diabetes insipidus in a girl of fourteen, presenting general adiposity, well developed breasts, and a persistent thymus. Her character was infantile though not stupid, and she was subject to attacks similar to petitmal. The X-ray examination showed no enlargement of the sella turcica. Her urine elimination amounted to about a gallon in 24 hours. Experimentally she showed a sugar tolerance of over 400 gms. The author concludes that the case is one of diabetes insipidus due to hypopituitarism.—F. S. H.

(HYPOPHYSIS) The influence of tethelin and of other alcohol soluble extractives from the anterior lobe of the pituitary body, upon the growth of carcinomata in rats. Robertson (T. B.) and Burnett (T. C.), J. Exper. Med. (N. Y.), 1916, **23,** 631-639.

The results of these experiments are best summarized in the author's own words: "The hypodermic administration of tethelin increased markedly the rate of growth of the primary tumor and the tendency to form metasteses in rats inoculated with carcinoma in this, as in other respects, reproducing the alcohol soluble extractives of the anterior lobe of the pituitary action of the whole anterior lobe of the pituitary body. Other body, with the exception of the lecithin fraction, exert no appreciable effect upon the growth of carcinomata in rats. The leci-

thin fraction, as in previously reported experiments in which we employed lecithin obtained from eggs, causes evident retardation of the growth of carcinomata in rats."—F. S. H.

(HYPOPHYSIS) Dystrophia adiposo-genitalis durch hochgradige Hypoplasia und Atrophie der Hypophyse. Rössle, Naturwiss. med. Gesellsch. (Jena), 1916, —, —. (Abstract in Folia neuro-biol. (Haarlem), 1918, **11**, 570.) (Wolffensperger).

A man of 27 who had been weak since childhood and who died following an operation for "coxa vara," was autopsied. The data obtained were: body-length 1.62, body-weight 50 kg., adiposity, hypoplasia of the thyreoid ((11 gm.), thymus (3 gm.), adrenals (5 gm.) and especially of the hypophysis which was separate from the infundibulum. After fixation the hypophysis weighed only 180 mgm. Microscopically there were found in the hypophysis a small posterior lobe and a cystic anterior lobe, but no stalk. The testes were the size of those of a 3 year old child. The other genital organs were much under-developed.

Another man of 68 had a large tumor in the region of the hypophysis, and at autopsy no hypophysis could be found. The tumor was a pure psammoma. The body form was that of a fat female, the adrenals and thyreoid were of normal weight, but the testes weighed only 8 gm. and the other genital organs were small. The seminiferous tubules were degenerated and there was no growth of interstitial cells.—E. R. H.

(HYPOPHYSIS) Present status of the definite treatment of the pneumonias. Solis Cohen (S.), J. Am. M. Assn. (Chgo.), 1919, **73**, 1741-1743.

Solis Cohen advocates the use of posterior pituitary lobe extract to sustain blood pressure and prevent gastro-enteric paralysis. Pituitrin should be given in 1 cc. doses at 3 hour intervals until the systolic blood pressure in mm. of Hg exceeds by five points or more the pulse rate per minute.—F. C. P.

(HYPOPHYSIS GONADS) A case of traumatic hypophyseal adiposity (Ein Fall von traummatischer hypophysärer Fettsucht). Schünemann, Münchener med. Wchnschr., 1920, **67**, 198.

After a fall from a carriage the patient developed an enormous adiposity. Glucose in 200 gram doses failed to cause glucosuria, as did also injections of adrenalin. The testes and the prostate were atrophic. There was noted polyphagia, polydipsia and polyuria.—J. K.

(HYPOPHYSIS THYROID) Acromegaly and goiter (Acromegaly et goitre). Sicard and Roger, Marseille med., 1917, **53**, 381.

A case is described in which goitre and typical acromegaly (enlarged, protruding lower jaw, enlarged extremities, etc.) occurred simultaneously in a man 49 years of age, who had lived in the Basses-Alpes where goitre occurs so frequently. Examination showed the presence of a large indurated thyroid and the sella turcica was shown by radiography to be greatly enlarged. The only symptom complained of was lumbar pain. There was no glycosuria and no ocular disturbances were found. The cerebrospinal fluid showed only an insignificant increase in globulin.—I. M.

HYPOPHYSIS, Report of a case of congenital syphilis of the—. Simonds (J. P.), Tr. Chicago Path. Soc., 1915-18, **10**, 30-34.

Simonds was able to find recorded in the literature only ten previous cases of congenital syphilis of the hypophysis. In his case the examination of the new born child showed diffuse proliferation of the connective tissue throughout the hypophysis. This was mostly perivascular. The cells of the anterior lobe were mostly of the "chromophobe" variety. The mid-cleft was large, dilated and contained masses of large cells with pale and, in some cases mutinuclear nuclei. In case of the adrenals, a deformity was present which, so far as could be determined, had not previously been recorded. The right and left glands were united across the mid-line. They were slightly hemorrhagic but otherwise apparently normal. Some degree of connective tissue proliferation was observed also in the thyroid and parathyroid glands and in the testes. No colloid was present in the thyroid. The islands of Langerhans in the pancreas were frequently also invaded by fibrosis.—R. G. H.

(HYPOPHYSIS) Standardization of pituitary extracts. Spaeth (R. A.), U. S. P. H. Hygienic Lab. Bull. 115 (Washington), 1918.

Several theoretical and practical objections are advanced against the use of beta-iminazolylethylamine hydrochloride as a standard for assaying pituitary extracts of unknown strength. The theoretical and practical advantages of using potassium chloride to produce qualitative effects upon the isolated virgin guinea pig uterus, which are comparable to the effects of pituitary extracts, have been studied. It is suggested that a Locke solution containing 0.14 per cent KCl in place of the normal 0.042 per cent KCl be employed as a new standard for determining the physiological activity of pituitary solutions of unknown

strength. Seven commercial pituitary preparations have been comparatively studied. Variations between the strongest and weakest solutions have been found to be in the ratio of 5:1. No positive correlation has been found between the relative acidity of the commercial preparations and their physiological activity. It is suggested that in order to maintain their physiological potency commercial pituitary preparations should contain hydrogen ion in a concentration of the order $N \times 10^{-3}$ (Ph=3). In order to make the proposed new standard conform as far as possible with the present U. S. P. IX recommendation, it is suggested that the effect of commercial pituitary extracts in a concentration of 1:4,000 should be equal to the effect of the potassium standard solution when the isolated uterus of a virgin guinea pig is used as a test organ.—Author's abst.

(HYPOPHYSIS) Zur Organotherapie bei Diabetes insipidus. Strauss (H.), Therapie der Gegenwart, 1916, —, —. Abstract by Lubowski in Fol. neuro-biol. (Haarlem), 1917, **10,** 477.

This author decreased the output of urine by one-fourth and raised the specific gravity, by treatment with "Pituglandol" (post. lobe extract). "Glandulen" (anterior lobe) had no effect on diabetes insipidus, but in true diabetes there was some suggestion that it tended to decrease glycemia.—E. R. H.

HYPOPHYSIS and THYROIDECTOMY (Hypophyse und Thyreoidektomie). Trautmann (A.), Frankf. Ztsch. f. Pathol. (Wiesbaden), 1916, **18,** 173-304.

This lengthy communication contains an almost exhaustive summary of the literature concerned with the problem investigated. Complete and detailed protocols are given of the macroscopic and microscopic changes occurring as the result of thyroidectomy, particular reference being made to a study of the hypophysis, in all a total of 30 goats being used for the purposes of the investigation. It was found that in goats, the removal of the thyroid gland resulted in marked alterations in all of the three parts of the pituitary gland. A complete extract of the work is impossible because of its length and detail; it deserves direct study by those particularly interested. The main conclusion to be drawn is that there exists an inner physiological relationship between the hypophysis and the thyroid. The complete or partial elimination of the thyroid function causes an actual pathological alteration in the properties of the blood which acts in a harmful manner on the different parts of the pituitary. The alterations that occur are mainly of a degenerative type. There was no evidence produced supporting the idea that the hypophy-

sis might serve vicariously for the thyroid. The author is of the opinion that none of the parts of the pituitary should be considered as insignificant in function, but that they should all be looked upon as integral and necessary parts of a whole.—F. S. H.

(HYPOPHYSIS) Roentgen-ray treatment of case of early acromegaly. Webster (J. H. D.), Arch. Radiol. and Electrotherapy (Lond.), 1920, **24**, 261-264.

In acromegaly, roentgen-ray treatment at present rests almost entirely on a theoretic basis. Webster contends that it should be eminently a disease suitable for roentgen-therapy, especially in its early stages, when the anterior lobe of the pituitary would show merely a simple chromophil hyperplasia, and before secondary tumor-like formation, local pressure damage, and much skeletal change has been produced. In his case so treated the disease had been of almost four years' duration. She had sixteen treatments with hard filtered rays from temporal and frontotemporal areas, the first eleven at weekly intervals, then fortnightly, latterly at monthly or longer periods. The effect was remarkable. The severe headache was rapidly relieved, and soon entirely disappeared. The "queer feelings" almost entirely left her: from two or three weekly they dropped to about one a month. The irritability and depression almost completely left her. She lost about seven pounds in weight. The most striking changes were in the eyes; the optic discs returned practically to the normal, while the fields of vision (especially for red) greatly enlarged. The right eye still presented some irregular contraction, chiefly inferior temporal. Apart from one or two bromid powders there was no treatment beyond irradiation. The patient was lost sight of for nearly two years; her condition, subjectively and objectively, had become aggravated again. She was then operated on successfully by the nasosphenoidal route.
—J. Am. M. Assn.

INFANTILISM (Infantilismo genuino). Bufalini (Emilio), Riv. critica di clin. med, 1919, **20**, 517.

Bufalini reports a case of true infantilism, which does not show any connection with the different forms of endocrine infantilisms. He advances the hypothesis that in such cases there might be an inherited, latent morphologic dystrophy, a congenital lack of developmental tendency. A complete arrest of development may result whenever there appears an intervening (toxico-infective) cause of dystrophy.—G. V.

The glands of INTERNAL SECRETION (Las glandulas de secrecion internas). Crispin (A. M.), Rev. del Circulo med.

y Centro Estudiantes de Med. (Buenos Aires), 1919, **19**, 1204-1209.

A general discussion containing no new points of interest. —B. A. H.

INTERNAL SECRETIONS, The significance of the doctrine of—and their utilization for gynecological practice (Die Bedeutung der Lehre von der inneren Sekretion und ihre Nutzanwendung für die praktische Gynäkologie). Fehling (H.), Monatschr. f. Geburtsch. u. Gynäk. (Berlin), 1919, **50**, 143-162.

A polemical discussion of Aschner's book and of such a nature as not to be satisfactorily abstracted.—F. S. H.

(LYMPH GLANDS AUTONOMIC N. S.) Sistema linfático y sistema nervioso vegetativo. Estudios experimentales acerca de la función hormonopoiética de los ganglios linfáticos. Nóvoa Santos (R.), El Eco de Santiago, 1919, pp. 37.

The author has investigated the possibility that the symptomatology of status thymo-lymphaticus may be due in whole or in part to the action of hormone factors originating in the lymphatic gland tissues. The investigation follows the general line developed by Eppinger and Hess in their well known studies of "Vagotonia and Sympathicotonia." As criteria of overactivity of the parasympathetic system are considered: Dilatation of the pupils, relaxation of the bladder, dilatation of the heart and stomach, tachycardia, vascular hypotension, glycosuria and hypochlorhydria. The pertinent literature is discussed at some length,—including the evidence adduced by Vincent and others pointing toward a lack of specificity of extracts of such tissues as those of the lymphatic glands (See Endocrin. **2**, 421).

The observations are recorded that in 599 cases of infants and children giving evidence of status lymphaticus, the cardio-ocular reflex was usually positive, indicating hypertonic condition of the vagus. The injection of extracts of lymphoid tissue provoked in human subjects a lymphocytosis as well as lowered blood pressure and diminished frequency of the pulse. A similar hypotensive effect was noted in dogs and rabbits. In the frog's eye a marked mydriasis was produced. These effects are antagonistic to those of adrenin. Similarly, the glycosuric effect of adrenin was depressed by lymphoid extracts. (The experiments were apparently not controlled by the use of indifferent organ extracts.) The final conclusion was that the lymphatic gland cells elaborate a specific substance with pharmacodynamic influence precisely the opposite to that of adrenin and correspondingly related to the parasympathetic system as is adrenin to the sympathetic.—R. G. H.

MYASTHENIA (Over myasthenie). Schermers (D.), Medisch Weekblad (Amsterdam), 1920, **26,** 566-577

A general review. The author does not believe that there exist any relations between this disease and the endocrine organs.—J. K.

The MYOMETRIAL endocrine GLAND in the uterus of the pregnant rat (Glande myométriale dans l'utérus de la rate gestante). Weill (Paul), C. R. Soc. de Biol. (Paris), 1919, **82,** 1433-1435.

Ancel and Bouin have found in the uterus of pregnant rabbits "myometrial cells" which in structure resemble an endocrine gland. Frankel has confirmed these observations. Weill gives a histological description of similar cells found in the uterine wall of pregnant white rats. The capillary vessels at the site of the placenta are surrounded by a great number of large cells filled with granules, clearly acidophilic, with the nucleus displaced toward the periphery. Weill thinks this mass of cells, which forms a true perivascular gland, must have a well determined function, but it is impossible to elucidate it at present.
—T. C. B.

(ORGANOTHERAPY) Indications for internal gland therapy. Timme (W.), N. Y. Med. J., 1920, **111,** 226-229.

The tissue manifestations of endocrine disturbances are manifold, hence we have come to regard some of these tissue changes as fairly pathognomonic of certain states. In the large proportion of cases showing characteristic evidence of disturbances, there are also evidences of compensation, hence not all are suitable for glandular therapy. Terminal types, such as Addison's disease, exophthalmic goiter and others, are largely beyond the reach of treatment. However, such conditions as fatigability, headache, structural abnormalities, gonadal and secondary sex changes and vasomotor and neurological disturbances yield readily to organotherapy. The necessity of detecting beginning endocrine disturbances and treating them is graphically emphasized.—H. W.

(ORGANOTHERAPY) Urological problems. Vecki (Victor G.), Cal. State J. Med. (San Francisco), 1917, **15,** 495. (Dec.), Reprint, pp. 7.

In the course of a general address the author remarks that after a very unfortunate history, organotherapy is gradually being re-established in the esteem of the medical profession. To the genito-urinary specialist endocrine advancement is particu-

larly significant. Many cases of so-called sexual neurasthenia intractable to local treatment will yield rapidly to judicious use of thyroid or pituitary preparations, but careful discrimination in regard to the preparation itself, in regard to the various indications and in regard to dosage are indispensable conditions of success. Thyroid medication is frequently indicated in enuresis. In any case the patient should be carefully watched and gland medication controlled by blood-pressure studies.—R. G. H.

(MUSCULAR DYSTROPHY) Biological study of a case of progressive myopathy (Recherches biologiques sur un cas de myopathie progressive). Adraid (Ch) and Binet (Leon), Arch med. exp. d'anat. pathol. (Paris), 1919, **28,** 549-562.

A rather complete study of a case of progressive muscular dystrophy giving no evidence of any disturbance in the functions of the endocrine glands.—F. S. H.

OSTEOMALACIA, Two cases of— (Zwei Fälle von Osteomalazie). Edelmann (M.), Wiener klin. Wchnschr., 1919, **32, 82.**

No new data. Disturbed function of the endocrine system plays an important part in the etiology of such cases. Adrenalin therapy has a good effect.—J. K.

(OSTEOMALACIA) Undernourishment and disease of the bones in Munich (Hungerknochenerkrankungen in München). Heyer, Münch. med. Wchnschr. (Munich), 1920, **67,** 98.

A study of nine cases of osteomalacia in which nothing new is reported.—J. K.

(OSTEOMALACIA) Über Osteomalazie. Strümpell, Münch. med. Wchnschr., 1919, **66,** 1304.

A general review without new facts.—J. K.

(OVARY) Uterine contractions and ovarian extract. Barry (D. T.), J. Physiol. (Lond.), 1916, **50,** 259-264.

Barry studied the effects of ovarian extract on the contractions of the pregnant uterus in three cats at about the middle of pregnancy. The extract was given intravenously in some cases, locally in others. It was found that the normal contractions were increased in both frequency and force in all cases and that the increase in tone persisted for a comparatively long period. Increasing the pressure within the sac was found to increase the tendency to contraction, whereas decreasing the tension diminished it appreciably.—I. M.

(OVARY) Resume of a series of cases of ectopic gestation and ruptured graffian follicles. Brooks (C. D.) and Clinton (W. R.), J. Michigan State M. Soc., 1920, **19,** 22-23.

There are many cases of rupture in ectopic pregnancy without a history of missed menstrual period and in many cases there is a history of normal amount, scanty flow and "spotting." Along with the characteristic symptoms of rupture there is pain in the rectum and referred pains down the thigh on the affected side.—H. W.

(OVARY) Sulla struttura dell'ovario nei Teleostei. De Castro (E.), Arch. ital. Anat. e Embryol. (Firenze), 1918, **16,** 1.

A cytological study of fish eggs and one of endocrine interest.—E. R. H.

(OVARY ENDOCRINE ORGANS) Genital findings in dementia praecox and physiological observations on genital infantilism (Der Genitalbefund bei Dementia Praecox nebst physiologischen Betrachtungen über den Infantilismus genitalium). Fraenkel (L.), Monatschr. f. Geburtsh. u. Gynäk. (Berlin), 1919, **50,** 433-440.

The studies of F. on cases of dementia praecox occurring in women have given a new proof of the endocrine nature of this disorder and show the presence of a marked hyperfunction of the ovary. Two explanations are possible: either the basis of the disease is general "infantilismus, praecipue cerebri et ovariorum," or the disease is founded on a pathological property or function of the glands of internal secretion accompanied by a marked hypofunction of the sexual glands.—F. S. H.

(OVARY) Innere Sekretion des Eierstocks. von Franqué (O.), Biol. Zentrabl. (Leipzig), 1919, **39,** 193.

A review of the German literature on the subject with especial reference to the work of Steinach. No new data are added. —E. R. H.

(OVARY) Hydatidiform mole associated with pernicious vomiting. Geist (S. H.), Trans. N. Y. Obs. Soc., Am. J. Obs. (N. Y.), 1919, **80,** 215-216.

Report of a case of pernicious vomiting associated with a uterine fibroid. The uterus was the size of that of a four months' pregnancy. No luteal cysts were present in the ovaries.—H. W.

(OVARY THYROID) An explanation of the action of iodine in dysmenorrhea (Versuch einer Erklärung des Weges der Jodwirkung bei Dysmenorrhoe). Grumme, Berl. klin. Wchnschr., 1919, **56**, 1188.

It is pointed out that there is a well established relationship between the thyroid and the ovaries and that the administration of iodine in dysmenorrhea would act on the thyroid and the improved function of this gland would then influence the ovaries. —J. K.

OVARIES, Sterilization by roentgen exposures of the—. Guillermin (R.), Revue Médical de la Suisse Romande (Geneva), 1919, **39**, 326-336.

Guillermin declares that exposures to the roentgen rays form the simplest and least harmful means for arresting ovarian functioning in women with pulmonary tuberculosis. Even menstruation may have a decidedly unfavorable action on tuberculosis, including congestion and whipping up hemoptysis, so that there is every reason to suspend the functioning of the ovaries in such cases, to say nothing of the menace from a pregnancy. Bezanzon long ago called attention to "these tuberculous women killed by their menstrual periods." In two cases he suppressed menstruation by fourteen and by four exposures. In the first case the menopause was complete; in the other there was merely arrest of menstruation, but this put an end to the monthly periods of fever and the recurring congestion, and this patient soon considered herself completely cured. The condition of the lungs in the other case also has materially improved.—J. Am. M. Assn., 1920, **74**, 426.

(OVARY CORPUS LUTEUM) The relation between the corpus luteum and menstruation (Über das Verhalten des corpus luteum zur Menstruation). Labhardt (A.), Zentralbl. f. Gynäk. (Leipzig), 1920, **44**, 185.

The changes in the mucous membrane of the uterus before menstruation depend upon the corpus lutem. At the time the function of the corpus luteum ceases, menstruation begins. The ovary has no influence whatever on the intensity of menstruation. Seitz has prepared from the corpus luteum a substance which he called lipamine. Probably this, according to the author, is the hormone of the corpus luteum. It is possible that some abnormalities of the mucous membrane of the uterus depend upon the ovary; for instance menorrhagia may be caused by the ovary. When, however, the uterus is normal the ovary never has an influence on menstruation.—J. K.

(OVARY) Nervous and mental disturbance after ovariectomy. Mendoza M (R.), Revista de Psiquiatria (Lima), 1919, **2**, 97-107.

Mendoza summarizes nine cases in which artificial menopause induced unusually severe nervous disturbances and change in character. No benefit was realized from organotherapy in most of the women. In the most refractory cases an element of hysteria or neurasthenia was manifest. One woman of 40 had attacks of unconsciousness, besides the usual phenomena of the menopause; no benefit was obtained from ovarian treatment, but under ergot for a time conditions gradually returned to normal. Headache, insomnia, neuralgias and pain in the lumbar region were common.—J. Am. Assn., **74**, 430.

(OVARY) The maturation of the human ovum. Thompson (A.), J. Anat. (London), 1919, **53**, 172.

The specimens were obtained from the ovaries of women who died suddenly or were accidentally killed, and not subjected to prolonged illness. This is the first time that the maturation stages of the human egg have ever been published. The human egg is shown by the author to be ovoid in shape about 0.11 x 0.95 x 0.10 mm. The zona pellucida is but loosely held to the corona radiata and hence easily separated at ovulation. There seems to be a true vitelline membrane, and a perivitelline space. The first and second polar bodies are both expelled within the ovary and the former undergoes division. Contrary to the rule for vertebrates in general, the human egg, then, is fully mature before the spermatozoa encounter it. There is evidence to show that the polar bodies are not really polar in position. It could not be determined whether or not the two polar bodies are extruded from the same point.—E. R. H.

(OVARY) Three cases of reappearance of ovarian peritoneal sacculation. Reynolds (E.), J. Anat. (London), 1916, **50**, 308.

A morphological discussion of the relation of the ovary to its endometrium in vertebrates in general and three human cases in particular, in which it was found that the ovary lay within a definite sac in the broad ligament corresponding to the condition existing normally in many of the lower animals. These are evidently cases of degressive mutation (de Vries).—E. R. H.

(OVARY) Embryology of coccids with especial reference to the formation of the ovary, origin and differentiation of the germ cells, germ layers, rudiments of the mid-gut and the intracellular symbiotic organisms. Shinji (G. O.), J. Morph. (Phila.), 1919, **33**, —.

Of technical interest.—E. R. H.

(PANCREAS) War and Diabetes (Krieg und Diabetes). Albu, Münch. med. Wchnschr., 1917, **64,** 422; Berl. klin. Wchnschr., 1917, **54,** 470.

The diabetics form but one per cent of the sick list of internal medical wards, more than half of which patients had been previously shown to be diabetic. The tolerance lost by exposure and continued field diet was usually quickly restored under hygienic dietary regulation. Albu considers that a tolerance of 100 g. of glucose is sufficiently high for acceptance for military service.—F. S. H.

(PANCREAS) Principles and possibilities in the dietetic treatment of diabetes. Allen (F. M.), Wisconsin Med. J. (Milwaukee), 1917, **16,** 231-239.

Diabetes mellitus is defined as a disturbance in metabolism in which there is an inability on the part of the body to assimilate all classes of food. The author's principle of treatment is then stated, followed by a consideration of its practical application. The methods of recognizing diabetes and of determining its severity and progress are outlined, emphasis being laid upon the value of blood sugar determinations from time to time. Management of the cases with various complications such as metabolic disturbances and infections is outlined. In the case of coma, the author places the patient under fasting, if coma comes on while a diet is being given, and gives a diet if the patient is fasting at the time it appears. Diabetics with tuberculosis are given the fasting treatment like others, often with improvement in both conditions. To prevent starvation in these patients, when some food must be given, protein is superior to other food elements. In all cases after the urine is sugar-free the diet is gradually built up by giving on the first day 10 grams of carbohydrate, with gradual addition of 10 gms. for each successive day until the limit of tolerance is reached and the blood sugar kept within normal limits. Mild cases are not necessarily treated like the more severe but require some restriction and careful watching. The author does not claim the treatment to be curative but palliative.—I. M.

(PANCREAS) Diabetes mellitus. Blodgett (S. H.), Boston M. & S. J., 1919, **181,** 422-427.

No new data.—H. W.

(PANCREAS) Acidosis in diabetes mellitus; its significance and treatment. Bridges (W. O.), Med. Herald (St. Joseph), 1916, n.s. **35,** 40-44.

A general, brief discussion of the subject.—F. S. H.

(PANCREAS) A consideration of diabetes. Brooke (Banner R.), Med. Sentinel (Portland, Ore.), 1916, **24,** 3214-3218.

A readable discussion of the principles and methods of diagnosing and treating diabetes. Emphasis is laid upon the inadequacy of quantitative determinations of urinary sugar without controlling the diet. A small quantity of sugar upon a restricted diet might be much more significant than a large quantity upon a carbohydrate-rich diet. It is recommended that the patient be kept for three days upon a diet totaling 80 gms. of protein, 200 gms. of fat and 100 gms. of carbohydrate. A quantitative determination of urinary sugar can then be made and to a considerable extent relied upon as indicating the degree of severity of the disease. The value of quantitative ammonium determinations as routine procedure in every day practice is lauded. These can be made quickly and accurately without special equipment. They afford a valuable criterion as to the rate of depletion of the alkaline reserve, and may often give warning of impending "acidosis." The formalin titration method of ammonium determinations is described and recommended.—R. G. H.

(PANCREAS DIABETES) Edgar serum treatment of diabetes mellitus. Edgar (T. W.), West. M. Times (Denver), 1920, **39,** 299-302.

Edgar bases the justification of his serum treatment of diabetes mellitus upon the following: True diabetes mellitus is not hereditary, but dietary, fostered through the medium of environment; Diabetic glycosuria is always preceded by a "preglycosuria" stage characterized by intestinal stasis and toxemia which may manifest itself either subjectively or objectively, this latter being the predisposing cause of the symptoms; we are dealing with a cycle of endocrine or pluriglandular events, and not specifically with pancreatic insufficiency; pluriglandular therapy is indicated and is of distinct benefit in all uncomplicated cases. Three cases reported.—H. W.

(PANCREAS) The relation of glycogen to the pathologic changes in pancreatic diabetes. Ervin (D. M.), J. Lab. and Clin. Med. (St. Louis), 1919, **5,** 146-153.

A theoretical deduction is offered that glycogen is greatly diminished in the cells in pancreatic diabetes, based upon the fact of the stabilizing power of glycogen in experimental emulsions. Glycogen is a stabilizing colloid in the cell and as such prevents the breaking of the emulsion or fatty degeneration by its resistance to acids, salts, etc. Glycogen is hydrolized by acids, and when hydrolized, there is left a protein-fat emulsion that is but poorly resistant toward acids. In diabetes, no gly-

cogen is formed and the fat is only slightly emulsified, permitting a high concentration of the fats or soaps to reach the cell and a consequent limited oxidation, with production of acetone bodies. The equilibrium of glycogen with glucose is shifted towards the glucose side by the presence of the hydrogen ion; this is the explanation of the high blood sugar in fever, mercury and phosphorus poisoning and nephritis.—B. T. S.

(PANCREAS) Xanthoma diabetica (Zur Frage des diabetischen Xanthoma). Fahr, Deutsche med. Wchnschr. (Berlin), 1919, **45,** 1373.

The diabetic xanthomas generally contain large quantities of cholesterin, but in the case described only traces of this compound were found, the mass consisting almost entirely of neutral fat. The opinion is expressed that diabetic xanthoma is caused by lipaemia with diminished lipolytic activity of the blood.
—J. K.

(PANCREAS DIABETES) A case of galloping diabetes in a child of fifteen years (Un cas de diabetes a marche rapide chez une enfant de quinze ans). Gautiere (P.) and Saloz (C.), Arch. de med. des enf. (Paris), 1917, **20,** 314-317.

An extensive report of a rapidly fatal case of diabetes occurring in a child of 15 who gave a positive Wassermann reaction. The striking facts were the rapid course of the disease, which is exceptional in a child of this age; the short coma, lasting hardly a day; the inefficiency of the intravenous administration of sodium bicarbonate which had no action whatever on the acetone bodies of the urine; the leucocytosis; the high sugar content of the cerebro-spinal fluid; and, finally, the histological normality of the liver and pancreas on misroscopic examination.
—F. S. H.

(PANCREAS) Importance and interpretation of urinary analyses in the diabetic (L'importance et l'interpretation des analyses des urines chez le diabetique). Gulpa, Bull. gen. therap. (Paris), 1919, **170,** 808-815.

A resume of the importance of, and reasons for, frequent analyses of the urines of diabetics, illustrated by a single case report.—F. S. H.

(PANCREAS DIABETES) Retinal changes in glycosuria. Hawthorne (C. O.), Opthalmoscope (Lond.), 1916, **14,** 365-367; Tr. Ophth. Soc. U. Kingdom (Lond.), 1916, **36,** 338-344.

A presentation of three summarized case-records of glycosuria accompanied by retinitis and retinal hemorrhages; from these it is argued that such phenomena may be utilized as a help in the diagnosis of early diabetes.—F. S. H.

(PANCREAS) The starvation treatment and fasting cure in diabetes (Hongerdagen en vastkuur bij diabetes). Hoogslag (W.), Nederl. Tijdschrft. v. Geneesk. (Haarlem), 1919, **63** (ii), 1770.

A report of excellent results in the Allen treatment of diabetes.—J. K.

(PANCREAS) Treatment of diabetes (De strijd tegen de suikerziekte). Hoogslag (W.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1920, **64**, 295.

A recommendation of the Allen treatment, which is described.—J. K.

(PANCREAS) The treatment of diabetes mellitus by alimentary rest. Hume (J.), Practitioner (Lond.), 1916, **97**, 430-434; See also: Brit. M. J. (Lond.), 1916, (i), 587 and (ii) 160.

A theory is developed that diabetes is essentially an acid autointoxication, the toxin originating from stasis or other abnormal conditions in the alimentary canal. This toxin formation can be prevented by purging and fasting. Checking of the toxin formation is regarded as the significant factor in the "Allen" treatment. Hume regards detailed metabolic studies and "caloric feeding" as unnecessary refinements in the treatment of ordinary diabetes.—R. G. H.

(PANCREAS) Diabetes mellitus in the Japanese, compared with its occurrence in Europe and America (Le diabete sucré "tônô byô" chez les Japonaise et son étude comparative avec le diabete observé en Europe et an Amerique, étude clinique et expermentale). Iwai, (T.), Arch. de med. exper. (Paris), 1916-17, **27**, 1-54.

It is a rare thing to find among the Japanese diabetes presenting the fundamental symptoms of polydipsia, polyuria, and emaciation; almost always the disease is found associated with some other disorder. The malady is benign and rarely fatal. The author is of the opinion that the Japanese have a higher sugar tolerance than other races, and that this is presumably a racial characteristic rather than a dietary one.—F. S. H.

(PANCREAS) Protein-sparing by glucose in experimental diabetes. Janney (N. W.) and Isaacson (V. I.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1917, **15**, 69-70.

The surgical removal of about 90 per cent of the pancreas of several dogs did not cause any diminution of the protein-sparing action of glucose in any of the animals. It appears that pancreatic tissue is provided far in excess of actual requirements or that this gland is not solely responsible for the protein-sparing action of carbohydrates.—F. S. H.

(PANCREAS) Glucose formation from protein in diabetes. Janney (N. W.), Arch. Int. Med. (Chgo.), 1916, **18**, 584-605; Tr. Coll. Physicians (Phila.), 1916, 3.s., **38**, 168-194; Med. Rec. (N. Y.), 1916, **90**, 346.

A series of pure isolated proteins was found to yield 48-80% glucose when fed to a diabetic subject. Whether from animal or vegetable sources made no apparent difference in the yield. Beef, rabbit, fish, chicken and egg, when similarly tested yielded 36-48% glucose. For this reason Janney regards the well known food tables of Van Noorden as inadequate as a guide in framing diabetes dietaries, since no cognizance is taken of such protein foods as sources of sugar. Egg was found to be the most satisfactory of the protein foods tested, since, weight for weight, it yielded only about 1/6 as much sugar as did bread. Various proprietary "diabetic foods" were found to be so high in protein as to be quite unsuited for the use of diabetics. From the foregoing data the conclusion is drawn that a mixed diet rather low in protein is no more injurious than is the high protein and fat diet often prescribed and it has the advantage of being more palatable.—R. G. H.

(PANCREAS) Diabetes, The causes of death in—. Joslin (E. P.), Am. J. Med. Sc. (Phila.), 1916, **151**, 313-321.

The author believes that death following coma in diabetes is avoidable and that all diabetics have a certain carhohydrate tolerance which should be determined. Out of 475 deaths, 147 have been without coma and due to other causes than diabetes. Death with coma was responsible for 273 cases and many of these could have been forestalled by earlier treatment. Some added burdens that should be prevented are: ether anesthesia, impaired kidneys, infections, mental excitement, fat poisoning and loss of body fluid. Salt should never be left out of even the starvation treatment.—F. S. C.

(PANCREAS) Effect of intravenous injection of pancreas emulsion upon the hyperglycemia due to depancreatization.

Kleiner (I. S.), Scientific Proceedings, Am. Soc. biol. chem. XIII. J. Biol Chem. (Baltimore), 1920, **41,** xviii.

If fresh dog's pancreas be hashed and mixed with three or four times its weight of sterile distilled water, allowed to stand in the refrigerator for from 1 to 20 hours and then strained through muslin a solution is obtained which, when diluted with five volumes of 0.9 per cent sodium chloride solution and injected slowly into depancreatized dogs during the course of an hour, causes a marked reduction in the blood sugar and a reduction of the glycosuria . Reduced glycosuria was also produced by similar injections with extracts of other organs but this was not accompanied by reduction in the blood sugar.—F. S. H.

(PANCREAS) War diet in diabetes (Kriegskost in Diabetes). Falta (W.), Wiener klin. Wchnschr., 1919, **32,** 398-400. Elias (H.), and Singer (R.), (ibid., 503-4).

The author of the first paper has long held that reduction in protein intake is an important factor in diet for diabetes. The war has proved it. The second paper is the third of a series, and is largely polemical against Falta.—Physiol. Abst. **4,** 218.

(PANCREAS) Surgery in diabetics. Labbé (Marcel), Am. J. Surg. (N. Y.), 1919, **33,** 257-259.

The author outlines the results of his surgical experience with diabetic subjects, discussing the special features of importance in this class of patients. These he considers under the following topical headings: (1) hyperglycemia, (2) acidosis, (3) the anesthetic and (4) pre-operative and post-operative treatment. He finds that in the less severe cases, various operations may be performed with impunity, if proper precautions in technique and treatment are taken. He recommends pre-operative anti-diabetic treatment to reduce hyperglycemia and acidosis and favors the administration of bicarbonate of soda both before and after operation to prevent the development of acidosis. Local anesthesia with cocaine, if possible, or, if not, spinal anesthesia is recommended. When general anesthesia is necessary ethyl chloride is preferable to ether. Chloroform is to be avoided.
—I. M.

(PANCREAS) A preliminary report of a case of diabetes mellitus at the present time under treatment, with short review of the recent literature. Larsson (B. Hjalmar), Detroit M. J., 1916, **16,** 163-165.

A modification of the Allen treatment was employed. Instead of maintaining absolute starvation, 800 calories was administered daily in the form of whiskey in black coffee.—R. G. H.

(PANCREAS) The cause of pancreatic diabetes (Das Wesen des Pancreasdiabetes). Lesser, Münchener med. Wchnschr., 1920, **67**, 307.

When the surviving liver of a frog is fed with Praeger's solution and adrenalin is added, sugar for a short time is formed in the liver. It might be thought that diastase is formed in the liver, but this is not true, for the solution leaving the liver has no increased amount of diastase. When, however, from a frog the pancreas is removed and then the liver is brought into Ringer's solution, addition of adrenaline causes the formation of diastase. It is probable that in the normal liver there is a separation of the glycogen and diastase. Removal of the pancreas brings the glycogen and diastase together.—J. K.

(PANCREAS) The recognition and management of threatening diabetic coma. Levison (Louis A.), Ohio M. J. (Columbus), 1916, **12**, 11-17.

Greatest care should be taken to recognize the signs of threatening diabetic coma. The usual symptoms of this are somnolence, gastro-intestinal disturbances,—vomiting, diarrhea or constipation,—increased irritability and muscular cramps in various parts of the body. Treatment should be begun early and pushed vigorously. In severe cases not only should alkalis be used, but also alcohol by mouth and rectum. Heart weakness should be looked for and appropriately treated, since it may lead to death from unexpected sources.—R. G. H.

(PANCREAS) The treatment of diabetes mellitus in children and adolescents. Leyton (O.), The Practitioner (Lond.), 1919, **103**, 370-380.

Diabetes mellitus is defined in some detail and means of recognizing it and of measuring its severity are discussed. Methods of treatment and control of the disease are likewise outlined. Infections, general anaesthesia and any other conditions that will disturb the metabolic processes are strictly to be avoided in diabetes. The Allen starvation treatment is strongly praised. Children are said to do exceptionally well on it if removed from sympathetic relatives and friends. After the urine is sugar-free the tolerance for the carbohydrates, fats and proteins is separately determined. The fact that intolerance for fat or protein frequently gives rise to sugar in the urine more easily than does carbohydrate food is pointed out. The optimum diet given to the diabetic when sugar-free is two-thirds of the limit of carbohydrate tolerance plus 2 gms. of protein per Kg. body weight per diem, plus sufficient fat to make the energy of the diet equal to 60 calories per Kg. body weight per 24 hours.—I. M.

(PANCREAS) Über Diabetes mellitus. Lichtwitz (L.), Ztschr. f. ärztliche Fortbildung (Jena), 1919, **16,** 601.

A general discussion without new facts.—J. K.

(PANCREAS) Lowering of the freezing point of the blood in diabetes (Blutgefrierpunkterniedrigung bei Diabetes mellitus). Lippmann (A.), Zentralbl. inn. Med. (Leipzig), 1920, **41,** 41.

A number of patients having diabetes, though with normal kidney function, showed a very marked depression of the freezing point of the blood. This depression did not run parallel with the amount of blood sugar and it is presumed that the blood sugar is not the only substance that is increased in these cases. There is evidence of the presence in the blood of diabetics of other reducing substances, for the amount of glucose determined by the reduction of Fehling's solution is always higher than when it is determined by other methods. In the author's opinion (as in that of Stepp) the increased glucose in the blood is accompanied by the occurrence of other substances.—J. K.

(PANCREAS PROSTATE) Diabetes and prostatectomy (Diabète et prostatectomie). Loumeau, Gaz. hebd. de sc. med. de Bordeaux, 1916, **37,** 71-72.

A report of the nature and the effects of removal of the prostate from a diabetic. Apparently both these prostatic disorder and the diabetes were cured. The author considers diabetes no contra-indication to surgical procedures under anesthesia.—F. S. H.

(PANCREAS) Diabetes treated by the Allen starvation method, with report of seven cases. Love (Tracy R.), Colorado Med. (Denver), 1916, **36,** 205-209.

Of seven severe cases of glycosuria all showed marked improvement following Allen's starvation treatment. Two cases did not show sugar-free urine owing to complications, but the treatment allowed the relief needed for operation. The author believes that the amounts of acetone, diacetic acid and ammonia in the urine are not a safe guide to the degree of acidosis, due to the fact that the oxybutyric acid is so combined with the tissues that it is not liberated until cases are well advanced.—F. S. C.

(PANCREAS DIABETES) Intermediary metabolism in diabetes. Lusk (G.), Trans. Coll. Phys. (Phila.), 1916, **38,** 244-248.

A brief statement of the simpler chemical changes that the carbohydrates may undergo during their metabolism in the tissues.—F. S. H.

(PANCREAS) A case of fatal diabetic coma without diacetic or betaoxybutyric acid. McCaskey (G. W.), J. Am. M. Assn. (Chgo.), 1916, **66,** 350-351.

A fairly typical case of diabetes ending in coma in a woman of 53 is reported. The case is recorded as showing that coma may develop in the absence of the acetone bodies mentioned and as a warning that a negative Gerhardt reaction does not necessarily exclude impending coma.—R. G. H.

(PANCREAS) Observations on the sugar of the blood and the sugar in the urine in varying conditions of health in the Bengali. McCay (D.), et al., Indian J. Med. Res. (Calcutta), 1919, **6,** 485-507.

This is Section II of a paper describing the extensive studies made by McCay and his co-workers on the sugar of the blood and urine. A general discussion of the relationship of the sugar of the blood to that of the urine and the factors concerned in regulating the excretion of sugar is entered into. The method employed was to determine the reducing power of the blood and urine by a special method in normal individuals, in glycosuries with normal kidneys and in individuals with nephritis. It was found that the threshold stimulus of the kidney for sugar excretion varies widely in different individuals and in the same person under different circumstances. Glycosuries are met with in whom: (1) the threshold is high—usually the condition seen in the fat, over-fed classes; (2) the threshold is low—as in (a) the later stages of the above; (b) those who have lost the power of storing sugar, oxidizing it or of converting it into fat; (c) those who present an excessive permeability of the kidney to sugar as a result of oxaluria, gout, or stone. The limits of the normal variations of the sugar of the urine of Bengalis are from 0.015 per cent to 0.15 per cent, the average being 0.065 per cent.

No parallelism or arithmetic proportions exist between the concentration of the sugar of the blood and that of the urine in any of the following conditions: (1) normal health, (2) aglycosuric diabetes, (3) varying degrees of glycosuria in different individuals; (4) varying degrees of glycosuria in the same individual. The ingestion of glucose is always followed by an increase in the sugar of the urine, whether the sugar concentration of the blood increases or not, i. e., in the healthy, potential diabetics, and diabetics. Kidney disease may prevent glycosuria even when very marked hyperglycemia is present—up to 0.86 per cent.—I. M.

(PANCREAS) Observations on sugar of the blood and the sugar in the urine in varying conditions of health in the Bengali. McCay (D.) et al., Indian J. Med. Res. (Calcutta), 1919, **6**, 508-549.

The present is the third paper on this general subject by McCay and his co-workers. Their studies consisted of observations on the onset and progress of glycosuria with reference to the cause of the prevalence of diabetes in India. A large number of the natives from the various classes were examined. The authors believe that they have established the following points: (1) The fat, flabby, indolent individual who is over-fed with carbohydrates possesses a lower tolerance for carbohydrates than the lean, energetic, hard-working individual. (2) In the preglycosuric stage of diabetes, the fat and sugar of the blood are much above normal and are both increased still more by the ingestion of sugar. (3) As the ability of the tissues to convert sugar into fat is gradually diminished, sugar begins to appear in the urine and is found to increase as the fat content of the blood decreases. (4) A tendency to glycosuria occurs in normal persons when excessive amounts of sugar are ingested over long periods, hence the difference in the normal and the diabetic individuals is not a qualitative but a quantitative one. (5) The obesity so common in the preglycosuric or early glycosuric is associated with the hyperglycemia and is due to a physiological storing-up of reserve material, the excess sugar of the blood being synthesized into fat. (6) The subsequent wasting is probably pathological and may be explained as due to loss of the power of the tissues to convert sugar into fat and the actual breaking down of fat to furnish energy to the body. (7) There is a strong hereditary factor in diabetes. (8) The over-feeding with carbohydrates is said to be sufficient in itself to account for the onset of hyperglycemia, lipemia, obesity and glycosuria. (9) Excessive carbohydrate also is thought to lessen the secretion of the HCl of the gastric juice, which leads to gastrointestinal inflammation. This inflammatory process is said to spread in turn to the pancreas, causing a depression in the internal secretion, which condition interferes with the oxidation of sugar.

—I. M.

(PANCREAS) Diabetic therapy. MacLeod (J. J. R.), J. Lab. & Clin. Med. (St. Louis), 1916, **1**, 780-781.

A general discussion. The points especially emphasized are that fasting will lower acidosis either in health or diabetes if it has the effect of stopping a one-sided metabolism and throwing the tissues onto a more nearly balanced ration of fatty acids and glucose. Other things being equal, there is more danger of

serious acidosis developing in fat than in lean diabetics.—R. G. H.

(PANCREAS) Diabetes mellitus. McMillan (D. W.), J. Florida M. Assn. (Jacksonville), 1916, **3**, 238-242

A general discussion of the cause, prevention and treatment of diabetes.—R. G. H.

(PANCREAS) Diabetes during the war (Über den Diabetes im Kriege). Magnus-Levy (A.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 1379; Berlin. klin. Wchnschr., 1919, **56**, 1150.

In Germany in 1914 the number of deaths caused by diabetes was double that of 1900, while in 1919 the number of fatal cases of this disease was the same as in the year 1900. During the war acidosis and diabetic coma were extremely rare, the coma that did occur failing to show the classical Kussmaul respiration. It is probable that under-feeding has played a part in the diminished number of fatal cases of diabetes.—J. K.

(PANCREAS) Diabetes during the war (Über Diabetes im Kriege). Magnus-Levy, Münch. med. Wchnschr., 1919, **66**, 1303.

During the war the number of cases of diabetes has diminished in Germany. Coma diabeticum became very rare. It may be a lesson to be careful with fat in the treatment of diabetes since fat was very rare in Germany during the war.—J. K.

(PANCREAS) Diabetes mellitus. Mettam (A. E.) and Craig (M. A.), J. Comp. Path. & Therap. (Edinburgh and London), 1916, **29**, 1-26.

An interesting case of spontaneous diabetes in a dog is described. The owner had noted the first evidence of disease three months before. The animal was thin and "skraggy" and had cataract. Appetite and thirst were normal. The sp. g. of the urine was 1.050. Glucose was noted as varying from 4.8 to 10%. The dog was killed and post-mortem examination made immediately. The blood plasma contained .39% glucose. The liver cells gave a positive glycogen test. The pancreas appeared normal in the gross; but careful search, using a variety of technical methods, failed to reveal any islands of Langerhans. The technique was controlled upon other pancreas material in which the structures were readily demonstrated. The thyroid was apparently normal. In the adrenals the cortex was somewhat hemorrhagic. Many of the medulary cells were vacuolated and showed

appearances suggestive of colloid degeneration. The nervous elements appeared normal. Many other details of the examination, not of endocrine interest, are omitted in this abstract.—R. G. H.

(PANCREAS) The treatment of diabetes mellitus. Mosenthal (H. O.), J. Med. Soc. N. Jersey (Orange), 1916, **13,** 339-355.

A valuable article for any one desiring a brief but comprehensive and readable discussion of the salient features of present day management of diabetes. The article includes useful food tables, diet and urine chart, methods of freeing the urine from sugar and acids and quantitative tests for "acidosis."—R. G. H.

(PANCREAS) Urinary output of nitrogen, chlorine, calcium, and magnesium in diabetes mellitus. Nelson (C. F.), Scientific Proceedings, Am. soc. biol. chem. XIII., J. Biol. Chem. (Baltimore), 1920, **41,** xiv.

Determinations of calcium, magnesium, and sodium chloride in nineteen cases of diabetes mellitus showed marked variations, as did the values obtained for the total nitrogen. In 26 per cent of the cases magnesium was excreted in larger amounts than was calcium. Eleven determinations, made from 5 to 21 days after six of the cases had been rendered free from sugar in the urine, showed a striking change in the urinary calcium magnesium ratio, magnesium appearing in larger amounts than calcium in 72 per cent of the determinations. The total nitrogen in each of the latter cases was from 1 to 6 grams higher than in the former.—F. S. H.

(PANCREAS) Accessory pancreas (Over het accessoire pancreas. Nieuwenhuyse (P.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63** (ii), 2106.

During a post-mortem examination there was found a small tumor in the stomach which proved to be an adenoma, the center of which showed typical pancreas cells, but no islets of Langerhans.—J. K.

(PANCREAS) Diabetesstudien. Petrén (K.), Arkiv för inre medicin (Nord. Med. Arkiv, Avd. II), 1918, **51,** 107-173.

Petrén records (in German) the results of a detailed study of 21 cases of diabetes. The study was undertaken to learn the conditions under which the carbohydrate tolerance could be augmented and the degree of improvement that, by dietary control, could be attained. The data on each case are tabulated. It ap-

peared that the shorter the duration of the disease, the better is the prognosis. The author agrees with Naunyn that those cases only can be regarded as mild in which glycosuria can be overcome by the reduction of carbohydrate to 60 gms. of bread a day. In any case the diet should be adjusted, if possible, to maintain an unbroken aglycosuric condition and gradually to build up tolerance. The age of the patient is regarded as the most important factor in the determination of results, but the data available did not permit any final conclusion as to the operation of this factor. The duration of treatment is also an important factor. By careful systematic attention to the diet it was found possible to increase the carbohydrate tolerance within a few weeks from 33 to 118% and as much as 128% by longer treatment. The improvement seemed to be progressive. The higher the initial tolerance the greater was the possibility of improvment. When the tolerance was 40 gms. at first, it could be raised from 50 to 100 gms. higher. It is held that dietotherapy is indicated, not alone on account of symptomatic improvement but as rationally directed toward modifying the underlying etiologic factors. For numerous details the original should be consulted.—R. G. H.

(PANCREAS) The treatment of diabetes. Robin (A.), Monde med. (Eng. Ed.) (Paris), 1916, **26**, 129-146.

The author defines four forms of diabetes and discusses the effect of treatment in the various forms. The first type is the true pancreatic diabetes not amenable to functional therapy, being benefited in but a few cases. The second form, hepatic or hepatogenous diabetes, is that in which the soil is already prepared by acquired or inherited arthritism and is precipitated by overfeeding or nervous wear and tear. These cases are claimed to be attenuated by treatment. The next type is the mild diabetes or gouty type, which is in most cases curable. Fourth in the classification are the cases of grave or complicated diabetes which call for special intervention and medication not admissible in ordinary diabetes. The necessity of educating the diabetic subject is pointed out. The habits of life with respect to general hygiene, diet and exercise must be carefully supervised. The various schools on dietary treatment are discussed and specific details as regards the various elements of the diabetic's diet are given. The diet is drawn up in each case on the basis of 30 calories per Kg. body weight per 24 hours as the minimum requirement of the diabetic, and after determining the 24-hour nitrogen output, to learn the nitrogen needs of the individual. The results of hydrotherapeutic and special hygienic measures and of various sorts of medication and electrotherapy are considered in some detail.—I. M.

(PANCREAS) Conservative treatment of diabetic gangrene; two cases, patient. Sammis (G. Frank), Long Island M. J. (Brooklyn), 1916, **10,** 202-203.

Two brief case reports. Standard diabetic regime served to conserve the resistance of the patients, so that successful results were obtained in gangrene of the feet by conservative operations.—R. G. H.

(PANCREAS) The clinical control of diabetes mellitus. Schroeder, Henry, Lancet—Clin. (Cincinnati), 1916, **115,** 102-108.

The nature of diabetes mellitus as a disease and the problems involved in its control are briefly outlined. The author emphasizes the importance of studying the blood sugar as well as the urinary sugar. The studies on eight cases of diabetes on the starvation diet are tabulated; these show that hyperglycemia very frequently persists long after the urine is sugar-free. The conclusions drawn from pathologic and clinical observations are that effective supervision of the patient with respect to diet and general hygiene makes possible the raising of the sugar tolerance, whereas dietary abuses lead to a lowering of tolerance. The paper is followed by discussion from other observers.—I. M.

(PANCREAS) Diabetic retinitis. Shafer (J. J.), Am. J. Surg. (N. Y.), 1918, **32,** 67-68.

Four forms are described. (1) Central punctuate retinitis: at the posterior pole of the fundus, especially in the macular region, are found numerous ivory white points, spots and stripes which surround the macula in an irregular manner. The spots are round, oval, or irregular in outline; their margin may be serrated. Some of them cover the small blood vessels, thus showing that they are within the nerve fibre layer. Between the white areas fine blood points, stripes or little spots may be seen. (2) Hemorrhagic diabetic retinitis in four forms: (a) fine punctiform hemorrhages; (b) larger hemorrhages which may enter the vitreous humor and produce localized bluish dimness; (c) sudden large hemorrhages (often with very little sugar in the urine); (d) hemorrhagic glaucoma, with no hope of recovery. (3) Diabetic albuminuric retinitis: in addition to an opaque and slightly swollen optic nerve-head and retina with alterations of the blood vessels characteristic of albuminuric retinitis, there are groups of white spots which are peculiar to diabetic retinitis. (4) Albuminuric retinitis is wholly independent of the coincident diabetic process.—L. G. K.

(PANCREAS) The starvation treatment of diabetes mellitus. Steiner (Walter R.), Proc. Connect. M. Soc. (New Haven), 1916, **124**, 176-186.

The principles of starvation treatment are briefly explained and the histories of eight cases of diabetes mellitus are reviewed with special reference to the importance of this form of treatment. Discussion of this paper with reports of other similar cases by a number of other investigators is appended.—I. M.

(PANCREAS) The treatment of diabetes with special reference to acidosis. Stilman (Edgar), Med. Rec. (N. Y.), 1916, **89**, 390.

A very brief note on the principles of determining "acidosis."—R. G. H.

(PANCREAS) Prognosis and treatment of diabetes as influenced by recent studies. Strouse (Solomon), Illinois M. J. (Chgo.), 1916, **30**, 332-337.

A general discussion not amenable to abstracting.—R. G. H.

(PANCREAS) Diabetes in the young. Strouse (Solomon), Med. Clin. (Chgo.), 1916, **2**, 327-329.

Cases of diabetes mellitus in children are presented and discussed with special reference to the successful employment of the Allen starvation treatment in the young. The author emphasizes the importance of careful supervision of the diet after the patient leaves the hospital. A comparison of the results obtained by modern methods of treatment in diabetes with those of old shows marked improvement, making the prognosis in children decidedly more hopeful. A case of typical renal glycosuria is presented, with a warning against treating such cases of lowered sugar tolerance as true diabetes mellitus.—I. M.

(PANCREAS) Inanition in the treatment of diabetes mellitus. Strouse (Solomon), Med. Clin. (Chgo.), 1916-17, **2**, 999-1006.

A brief historical review of various methods of treatment employed in diabetes mellitus is given, followed by a short exposition of the "Allen treatment." The author does not fully agree with Allen that the weight curve should be entirely neglected for the urine chart. The general nutrition of the patient must be carefully guarded.—I. M.

(PANCREAS) Syphilis as a cause of diabetes mellitus. Williams (J. R.), J. Am. M. Assn. (Chgo.), 1918, **70**, 365-367.

Careful clinical and laboratory examinations were made on a large number of patients suffering from diabetes mellitus to discover signs of syphilitic infection. Only 4 out of 143 cases showed a positive Wassermann reaction, while the physical examination of 126 cases for lesions characteristic of syphilis did not lend support to the view that the disease is a common causal factor in diabetes. Literature corroborative of Williams' conclusion on the subject is cited. The study, therefore, does not support the view advanced by Warthin that syphilis is the chief etiologic factor in the production of pancreatic diabetes. If it proves anything it is that syphilis is rarely the provocative agent.—L. G. K.

(PANCREAS) The treatment of diabetes mellitus. Williams (John R.), Vermont Med. (Rutland, Vt.), 1916, **1**, 341-348.

Following a general discussion of the topic Williams concludes that liability to diabetes is undoubtedly transmissible from parent to offspring. Infections have a very deletarious influence on diabetes and should be sedulously guarded against. Instruction of the patient is a major part of the treatment. Unless he understands the reason for procedures undertaken, and is willing and able to co-operate, the treatment will fail. Intercurrent complications demand careful study; they may be more serious than the diabetes. Difficult cases should be sent to institutions adequately equipped to make metabolic studies. —R. G. H.

(PANCREAS) The dietetic treatment of diabetes mellitus. Williamson (R. T.), Practitioner (Lond.), 1918, **100**, 35-40.

Three different diets are described which are said to check glycosuria if restricted or rigid diabetic diets fail. Starvation is advised only if all other methods have failed. Fast days, once a week, are said to be of service. After the glycosuria has been checked the diet is gradually changed, bacon, green vegetabls and eggs being permitted. Later, diabetic bread or biscuits are allowed. Salicylate of soda and acetyl-salicylic acid are often of value when given in large enough doses, and should be tried if the dietetic treatment fails.—L. G. K.

(PANCREAS) The dietetic treatment of diabetes. Worcester (G. F.), N. Eng. Med. Gaz. (Boston), 1916, **51**, 127-139.

The historical development of various forms of dietetic treatment in diabetes mellitus is briefly reviewed with a consideration of the present systematic methods. The importance of early treatment is strongly emphasized.—I. M.

(PANCREAS) Ear affection and diabetes. Zimmerman (Chas.), Ann. Otol. Rhinol. & Laryngol. (St. Louis), 1916, **25,** 637-648.

The otologist is concerned with diabetes in that the lowered resistance characteristic of the disease may aggravate several of the conditions with which he has to deal. Furunculosis of the auditory meatus is sometimes encountered while otitis media and mastoiditis in diabetics are particularly hard to deal with. The literature is reviewed and five cases illustrative of the relationship are described.—R. G. H.

PARATHYROIDS, Transplantation of—in postoperative tetany (Epithelkörerverpflanzung bei postoperativer Tetanie). Borchers (E.), Zntralbl. f. Chir. (Leipzig), 1919, **49,** 907.

The author has described a case of post-operative tetany perfectly cured by transplantation. The patient became pregnant; in the fourth week she complained of pains in arms and legs and she lost a great part of her hair. In the fifth month very severe attacks of tetany were seen and it was necessary to produce abortion. This proves again what was already known from experiments on animals, that during pregnancy the function of the parathyroids must be increased and that, when the glands are not able to increase their function, tetany may occur. This patient is of importance as Adler and Thaler proved that animals without parathyroids never become pregnant. The author believes that in these cases of postoperative tetany, it is better to add to the transplantation sterilization of the woman. This patient was again restored to health after abortion. A second case of successful transplantation in postoperative tetany is also reported.—J. K.

(PARATHYROID THYROID) Considérations sur la paralysie agitante. Gauthier (G.), Le Méd. Français (Bourg-la-Reine), 1919, **12,** 181-183.

The author regards Parkinson's disease as due primarily to disturbance of calcium metabolism which is regulated especially by the action of the parathyroid glands. In 1902, struck by a resemblance between paralysis agitans and Graves' disease, Gauthier began treating his patients with a glycerine extract of the thyroid-parathyroid glands. His success therewith "has been incontestible."—R. G. H.

(PARATHYROID) Treatment of postoperation tetany (Zur Therapie der postoperativen Tetanie). Haas (W.), Zentralbl. f. Chir. (Leipzig), 1920, **47,** 171.

A case is reported in which the author obtained good results from the administration of tablets of parathyroids (up to 0.1 gram dried glands six times daily). In the literature are described cases of postoperative tetany cured by thyroid preparations. Many theories are given to explain this result. Haas, however, believes that such cases are instances of spontaneous amelioration and that the administration of thyroid has no effect whatever. During pregnancy, post-operative tetany is very serious. In this connection a case is described in which, during pregnancy, strumectomy had to be performed for stenosis. There was found a very marked hypertrophy of the parathyroids.—J. K.

(PARATHYROIDS) Treatment of postoperative tetany by transplantation of parathyroids (Die Behandlung der postoperativen Tetanie durch Epithelkörpertransplantation). Landois (F.), Zentralbl. f. Chir. (Leipzig), 1920, **47**, 74.

The results of animal experimentation and a clinical case have led L. to the conclusion that in general postoperative parathyroid transplantation is unsuccessful in relief of postoperative tetany unless the patient had previously shown no symptoms of latent or manifest tetany. One case is reported in which the implantation of three parathyroids gave but temporary relief, the patient later dying of tetany.—J. K.

(PARATHYROID) Studies on the relation of the human parathyroid glands to the occurrence of calcium deposition in the organism (Untersuchungen über das Verhalten der Glandulae parathyroideae des Menschen beim Vorhandensein von Kalkablagerungen im Organismus). Tomaszewski (Zdzislaus), Frankfurt. Ztschr. f. Path. (Wiesbaden), 1918, **21**, 38-56.

The post-mortem pathological findings made with a view to studying the apparent histological changes evidencing activity in the parathyroids. The occurrence of calcium depositions resulted in the author's classifying his subjects into three groups according to the intensity of the glandular function indicated in this manner.

In the first group were nine individuals in whom the histological picture of the glands showed the presence of all the elements commonly ascribed to an increased glandular functioning, such as many oxyphil cells, follicles and colloid.

The second group, although showing the presence of some activity by histological criteria, did not present a complete picture, there being usually omitted one or two of the factors going to make up a unified and active composite. There were seven subjects in this group.

In the four members of the third group there was but little evidence of glandular activity and if any had been present it was of a low order. Many of the cases were complicated by the demineralizing activities of tubercular processes, but notwithstanding this, those cases presenting histological pictures of heightened glandular activity also presented evidence of extensive calcium deposition.—F. S. H.

(PARATHYROID?) A case of osteomalacia and tetany (Ein Fall von Hungerosteomalazie und Tetanie). Sauer (H.), Deutsche med. Wchnschr. (Berlin), 1920, **46**, 45.

Description of a case which in contradistinction to those frequently observed in Vienna presented no pain when the bones were subjected to pressure.—J. K.

(PARATHYROID?) Tetany in the eunuchoid: report of case. Woltman (H. W.), J. Nerv. & Ment. Dis. (Phila.), 1919, **50**, 433-447.

The history of tetany and its relation to the parathyroids is briefly reviewed. The detailed case history may be summarized as follows: A barber, aged 36, complaining of convulsions, presented himself for examination. His family history showed some tendency toward endocrine disturbances. The patient had convulsions for one year in infancy. He married at 29, but his wife has never been pregnant. At 29 he noticed that his legs became very easily tired. This grew progressively worse. At 33 he noted marked abdominal distension, at intervals of about one week, lasting 45 minutes. One month later he noticed that his legs "jerked up," and he was able to walk only by staggering along on his toes. These spasms increased in frequency and intensity. Six months later they were accompanied by "cramping of the jaw" and lasted 30 or 40 minutes. He improved somewhat and was able to be about on crutches, but soon his legs began to swell and he noted edema of the abdominal wall and back and complained of burning pain in the legs. Soon after this he was unconscious for three days, developed contractures of the legs and some mental symptoms. The muscles were atrophied, the skin dry and scaly, and, over the abdomen, covered with brown spots. The spasms diminished in intensity and number, but any attempt to get up was followed by vomiting.

Physical examination. The hair was seen to be thin and dry; there was hypotrichosis of body hair with female distribution over the pubis. The right testicle was very small, the left absent (surgical removal). The voice was high pitched and somewhat cracked. Palpation of the thyroid was uncertain. The blood serum and spinal fluid Wassermann reaction was

negative. Roentgenograms of the sella and the hands were negative. There was slight pallor of the optic discs.

On compressing the left upper arm (testing for the Trousseau phenomenon) the fingers grew pale and cold and in one-half minute passed into a tonic spasm. The spasm extended up the arm and almost simultaneously appeared in the right arm, muscles of the floor of the mouth, tongue, lips and, to some extent, in the legs. The jaw was fixed by a tonic spasm, interrupted occasionally by painful clonic movements. The patient was conscious and able to talk. The spasm was terminated after 65 minutes by a hypodermatic injection of ½ grain of morphine. The spasm gradually disappeared, leaving the fingers last. About two weeks later the spasms involved the throat muscles, and the eye-balls were rotated upward until only the border of the cornea was visible.

Medication (thyroid gland and calcium lactate) produced no results. Death occurred about one year later. The case report is followed by an able discussion of the symptoms and their individual frequency and a list of references to medical literature.

The author states that it would seem justifiable to assume that when there appears marked evidence of polyglandular participation in which the disorder is not initiated by a disturbance of the thyroid gland the prognosis is very grave. A distinct heredofamilial tendency to glandular disturbance, especially when associated with the psychoses or certain neurasthenic states, renders the prognosis much more grave.—F. C. P.

PARATHYROID, Histological examination of—in a case of chorea (Nuovo reperto istologico delle paratirodi in un case di corea volgare). Zibordi (F.), Gazzetta degli Ospedali (Milan), 1919, **40**, 471.

In a case of goitre only two parathyroids were found and these contained very few chromophil cells.—J. K.

PINEAL innervation in teleosts (Zur Frage der Epiphysen-Innervation bei Teleostei). Holmgren (N.), Fol. neuro biol. (Haarlem), 1918, **11**, 1.

A brief description of the nerves to the pineal body of various fishes.—E. R. H.

(PINEAL) Histology and embryology of the human pineal (Histologische und embryologische Untersuchungen über die Zirbeldrüse des Menschen). Krabbe (K. G.), Anat. Hefte, 1916, **54**, — (Abstract by Lubowski in Fol. neuro-biol. (Haarlem), 1918, **11**, 68.)

The development of the pineal has already begun in the second fetal month, at which time it consists of two parts: a fold in the roof of the second vesicle and a cell mass anterior to this; later, these two parts unite. During fetal life the original type of cell differentiates into three forms from which the parenchyma of the gland develops, during infancy and adolescence. These cells are glial, neural, and parenchymatous, proper. A description of them is included. Connective tissue follows the blood-vessels. It contains mast cells, previously called acidophiles, pigment cells and, in senile individuals, plasma cells. The latter are present in children under certain pathological conditions, such as progressive paralysis. Concretions are present at 6 years and sometimes earlier. The pineal grows very little after childhood.

As to function the gland may be a sort of sense organ to regulate the pressure of the "central process" or it may have an internal secretion. The author states that, anatomically, it looks more like a gland than a sense organ.—E. R. H.

(PINEAL) Effect of feeding the pineal body upon the development of the albino rat. Sisson (W. R.) and Finney (J. M. T.), J. Exp. Med. (N. Y.), 1920, **31,** 335-346.

Pineal bodies of young calves were fed to albino rats of three weeks of age for a period of three to six weeks. Fourteen were fed powdered pineal body and ten were used for control. About half of the treated animals remained slightly smaller than the controls. The microscope revealed no differences in the pineal bodies of the treated animals when compared with those of the controls. The authors conclude that "feeding the desiccated pineal body of young calves to young albino rats fails to produce any effect upon the development of these animals."

—B. T. S.

(PINEAL) Menstruatio precox. Volhard, Münch. med. Wchnschr. (Munich), 1919, **66,** 1502.

A short note concerning a girl of 8 with regular menstruation and adiposity, in whom, at the time of menstruation, eclamptic-like seizures occurred. The diagnosis as given is a probable teratoma of the pineal.—J. K.

(PLACENTA) The placenta as a birth-promoting organ (Die Placenta als wehenförderndes Organ). Ludwig (F.), Monatschr. f. Geburtsh. u. Gynäk. (Berlin), 1919, **50,** 256-282.

In view of the interest taken in the endocrine aspects of the placenta L. has made a study of the effect of placental extracts on the contractability of the isolated intestinal segment of the

rabbit and guinea-pig. He found that both fresh and boiled extracts of the placenta caused contractions of such segments from both types of animal. Moreover, the extract exerted a similar type of stimulating effect on segments of a pregnant guinea-pig uterus as well as on a bit of human fallopian tube. However, liver extract and pituitary extract gave similar responses, but apparently not to the same extent. On the basis of these experiments he concludes that there must exist in the placenta a specific substance initiating and faciliatating parturition. It is the opinion of the abstractor that the evidence for this conclusion is insecure, first, because of the fact that the published curves fail to show any marked difference in action between the placental extracts and those obtained from the liver and pituitary, and in the second place, since it is distinctly stated that the extract of a freshly delivered placenta is completely inactive, the active extracts having been obtained from the so-called "ripe" material.—F. S. H.

(PROSTATE) Action of extracts of hypertrophied prostate on the bladder (Action des extraits de prostate hypertrophiée sur la vessie). DuBois (Ch.) and Boulet (L.), C. R. Soc. de Biol. (Paris), 1919, **82**, 1054-1055.

The intravenous injection of extracts of normal prostate causes a contraction of the bladder. Extracts of hypertrophied human prostate have no such effect in most cases. Positive results are occasionally obtained, but it is due to the presence of normal tissue in the hypertrophied gland. The retention of urine in subjects of hypertrophied prostate is due to the fact that the gland no longer furnishes the internal secretion which is the excitant of the vesical muscles. The return of micturition after prostatectomy is due to the removal of the growth which has obstructed the normal function of the gland, allowing it to recover its functional activity.—T. C. B.

(PROSTATE TESTES) Organotherapy in prostatism (Organotherapie des Prostatismus). Rohleder, Deutsche med. Wchnschr. (Berlin), 1920, **46**, 70.

Not only is it generally accepted that the prostate has an internal secretion, but it is usually acknowledged that there is a relationship between the secretion of this gland and the internal secretion of the testicle. This conception is derived from the fact that castration is followed by atrophy of the prostate and that hypertrophy of the prostate generally begins to appea. when the sexual desires begin to diminish. It has already been shown that when dogs are castrated and extracts of the testicles injected there fails to occur any atrophy of the prostate (Walker). This affords valuable indications for treatment. In the

first and second stages of hypertrophy of the prostate the administration of testicular preparations by mouth may have a temporary good effect, but in the last stage no beneficial results are obtained. The author advises the implantation of fresh human testicles into individuals suffering from hypertrophy of the prostate, although he himself has never performed the operation.—J. K.

SCLERODERMA, Two cases of—with sclerodctylia (Due casi di sclerodermia e sclerodattilia). Capezzuoli (Cesare), Rivista critica di Clinica Medica, 1919, .., 577-593.

The A. reports two cases of scleroderma with sclerodactylia, one complicated with Raynaud syndrome. Both cases had tuberculosis in their parental anamnesis; neither of them showed any thyroid or thymus disorder, but in both slight adrenal deficiency was apparent with, in one case, marked melanoderma. There was no alimentary glycosuria and no adrenal glycosuria could be obtained.—G. V.

SCLERODERMA, The relations between—and diseases of the endoctrine organs (Über die Beziehungen der Sklerodermie zu den Erkrankungen der endokrinen Drüsen). Roesch (W.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 1329.

Scleroderma is a symptom of polyglandular insufficiency. In the case described by the author, there were symptoms of adrenal and thyroid insufficiency. —J. K.

(SECRETIN) On the influence of atropine on the secretion of pancreatic juice. Savich (V. V.), J. russe de physiol., 1917-1918, **1**, 134-140.

The secretory effect of soap and fats on the pancreas is rapidly inhibited by atropine, if used in acute experiments, but not in animals with permanent pancreatic fistulæ; this difference is explained by the difference of method of administration of the drug in these cases, intraveneously or subcutaneously—i. e., it depends upon the quantity of poison which reaches the secreting cells. The secretory effect of soap is thus under the influence, not only of a nervous mechanism, but also of a humoral one. On the other hand, the author is inclined to believe that some hormone, perhaps secretin, is produced in the duodenum, under the stimulation of the secretory nerves of the pancreas.—Physiol. Abst. 4, 391.

(SEX) Intersexuality and hermaphroditism in man (Die biologischen Grundlage der konträren Sexualität und des Her-

maphroditismus beim Menschen). Goldschmidt (R.), Arch. f. Rassen-u-Gesell. Biol. (Berlin), 1916, **12**, 1.

The author discusses the biological foundation for the existence of individuals who are neither truly males nor females, but have certain primary and secondary characters of either sex.

He has shown by his studies in genetics on certain insects, that it is possible to produce, experimentally, every grade of intersexuality from the male to the female, not only in external body form but also in the internal organs. (See Endocrinology 1917, **1**, 433.) The experimental animals showed also, all grades of instincts and habits between the extremes of the two sexes. He points out that no animal, including the human, is either purely male or female, but each has the potentialities of both. Usually, of course, the one sex or the other predominates, but either sex may normally show secondary characters of the other. Animals of either sex will take on characters of the other following castration or transplantation of gonads (Steinach).

Hermaphrodites, pseudohermaphrodites and many persons considered sexually abnormal are simply sexual intergrades, and therefore not pathological, but simply natural variations, the result of the chromosome complex, and perhaps partly of abnormal internal secretions of the gonads. (Lillie has shown that the free-martin is a sex intergrade caused by male hormones, acting through the placental circulation, on a female fetus. J. Exp. Zool., 1917, 23, 371.)

Goldschmidt believes that these human sex intergrades are not degenerates, since 50 per cent of them are found in sound families, but that they are the natural result of crossed matings of people of different genetic constitution. The number of "contrary sexuals" is much greater in these peoples than where the race is pure.

There are psychic as well as physical sex intergrades.

The author suggests that intersexuals (individuals with characters of both sexes) be treated with gonad extracts or transplants.

This paper affords a possible answer to those who blame the thymus for the appearance of secondary sex characters of the opposite sex in cases of so-called "status thymicus," and especially in the "recessive" cases of Symmers wherein, so far as can be demonstrated microscopically or otherwise, the thymus is perfectly normal or even atrophic, and probably entirely blameless of the condition obtaining.—E. R. H.

SEX, The determination of—. McConnel (Mrs. D.), Med. Press (Lond.), 1918, n. s. **106**, 27-29.

Not of endocrine interest.—L. G. K.

(SKIN) On a protective function of the skin (Ueber eine nach innen gerichtete Schutzfunktion der Hant). Hoffmann (E.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 1233.

The author does not believe that the function of the skin is only a mechanical one. It is known that the skin is able to produce an enzyme ("dop-aoxydase") that is required for the formation of pigment. It is also generally accepted that infectious diseases with well developed symptoms of the skin (syphilis, scarlatina, typhus exanthematicus) have a better prognosis than when the eruption is not well developed. The irritation of the skin seems to have a favorable influence on the resistance of the body. Therefore the author thinks that it may be possible that the skin has an internal secretion. Stimulation of the production of this internal secretion may have an influence on other diseases of the organism. In this way it is perhaps possible to explain the splendid effect of light-therapy, of artificial "sunlight," and other therapeutic procedures directed toward internal diseases in patients who have skin affections.—J. K.

SPLEEN, Effects of the removal of the—upon the metabolism in dogs. Preliminary report. King (J. H.), Johns Hopk. Hosp. Rep. (Balt.), 1919, **18**, 7-9. For abstract of earlier report see Endocrin. **3**, 226.

Metabolic studies were made on dogs before and after splenectomy. Metabolic processes were in general little affected. After the operation, however, there was observed an increase in the fat and cholestrin of the blood, together with increased absorption of fats and increased elimination of fatty acids. The blood thereby acquired an increased efficiency against hemolytic agents, a fact which probably explains to some extent the efficacy of splenectomy in the treatment of hemolytic types of anemia. An increased elimination of calcium was noted which, it is suggested, may stand in some causal relation to the clinical tendency of these cases to hemorrhage. The calcium disturbance, however, can hardly be considered of moment because it was found that it was not sufficient to interfere with the skeletal development of puppies after the operation. The studies as a whole fail to bring to light any group of findings which can be correlated into a clinical symptom complex dependent upon a loss of function of the spleen. A detailed report is promised at an early date.—R. G. H.

SPLEEN, The importance of the—in resistance to infection. Morris (D. H.) and Bullock (F. D.), Annals of Surgery, 1919, **70**, 513.

An experimental study of the problem, which is more of immunological than endocrine interest. The experiments involved 392 rats. One-half of these were splenectomized and one-half were subjected to a laparotomy and the removal of one testicle. This operation was selected as furnishing a fair basis of comparison. The operations were done under ether and every precaution taken to guard against operative complications. The animals were all exposed to chance laboratory contagion and kept under observation for several months. The results show in a very definite manner that, while the animals may get on fairly well without a spleen in the absence of any infection, the reverse is true when the organism is put to the strain of resisting acute bacterial invasion. The death rate among the splenectomized rats was 80.5% as compared with 38.9% among the controls during the time they were under observation.—J. F.

STATUS LYMPHATICUS, Its occurrence and significance in war neurosis. Davis (T. K.), Arch. Neurol. & Psych. (Chgo.), 1919, **2**, 414-418.

The author studied two groups of soldiers (114 psychoneurotics, and 119 surgical cases) all of whom had seen front line duty. The term status lymphaticus was applied in this series of cases to the soldiers showing bodily hypotrichosis in contrast to abundant scalp hair, feminine type of pubic hair, a velvety skin, a tendency toward abnormal length and narrowness of the thorax, and slenderness of the long bones. Of the 114 psychoneurotic cases 23.68% were of this status type, and among the surgical cases only 12.6% showed this syndrome. Davis concludes that an endocrine abnormality (status lymphaticus) increases the susceptibility to the neurosis. (See Endocrin. 3, 209.)—F. C. P.

(SYMPATHETIC N. S.) "Trichotonia" and "trichographism": a new sign of hyperirritability of the sympathetic (Tricotonia e tricografismo: un nuovo segno d'ipereccitabilitá sympatica). Pende (N.), Gazz. Ospedali Clin. (Milan), 1917, —, — (No. 60). Abst. Riv. Patol, Nerv. e ment, **22**, 998.

Pende has applied the term "Trichographism," to the phenomenon commonly known as "goose-flesh," when it is caused, not by cold, but by mechanical irritation. The phenomenon is due to the contraction of the musculi arrectores pilorum which are under control of the sympathetic nervous system. When the sympathetic system is hyperirritable, stroking the skin along the sternum or mammary region with a blunt point sets up local reflexes and causes the "goose-flesh" to appear as a zone of closely placed elevations in the path of the stroke. The re-

action signifies a condition of augmented activity of the muscles concerned, hence "trichotonia." The phenomenon is seen especially in conditions of hyperthyroidism and may be regarded as a special manifestation of "sypathicotonia."—R. G. H.

(TESTES) Operation for cryptorchism (Zur Operation der Kryptorchismus). Frangenheim (G.), Zentralbl. f. Chir. (Leipzig), 1920, **47**, 173.

Of technical surgical interest.—J. K.

(TESTES) Demonstration of the appearance after castration of chick feathering in a hen feathered cockerel. Morgan (T. H.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1916, **13**, 31.

In Seabright fowls the cocks normally have "hen feathering," i. e., the hackles and saddle feathers are similar to those of the female. If the male adult is castrated and the saddle feathers removed those which grow in are more nearly of the masculine type. There is reason to believe that cock feathering is the fundamental tendency of both sexes but that normally this is inhibited in females by hormones from the ovaries. Morgan suggests that in the Seabright variety a similar inhibitory influence emanates to some extent from the testes, also.
—R. G. H.

(TESTES, ADRENAL) Normal and morbid conditions of the testes from birth to old age in one hundred asylum and hospital cases. Mott (F. W.), Brit. Med. J. (Lond.), 1919, (ii), 655-659, 696-700, and 737-742.

The testes were examined in 100 subjects who had died in asylums and hospitals at all ages from birth to 86 years. The contents of the vesiculae seminales were examined in a majority of the cases and in a few, the thyroid, suprarenal and pituitary glands also.

The study showed that at birth there is a large amount of interstitial tissue between the seminiferous tubules; the interstitial cells of Leydig are numerous and have the appearance of a gland; these cells contain a lipochrome substance like lutein and lipoid granules. At four months the tubules have doubled in size, the interstitial cells are hardly visible and no lipoid granules are seen. At eleven years there is little change in the size of the tubules and the interstitial cells are only discernible with an oil-immersion lens. Little or no interstitial lipoid is seen. There is commencing evidence of nuclear activity and karyokinetic figures, but no spermatids nor spermatozoa. At 15 (puberty) the tubules are closely approximated and all stages of active spermatogenesis are observable. There is abundant in-

terstitial lipoid and lipoid granules are seen in the cells of Sertoli, though not so abundant as in the adult.

Cases dying before puberty of chronic diseases (tuberculosis, congenital syphilis and morbus cordis) show complete arrest of development of the seminiferous tubules. This seems to confirm Kyrle's view that arrested development of the seminiferous tubules is a sign of deficient vital resistance to disease.

Normal spermatogenesis was studied in cases of death following injury. Active spermatogenesis is seen in all stages; the interstitial cells contain much lipoid, and the spermatogonia, and especially the Sertoli cells, are filled with fine lipoid granules. Where there are sheaves of spermatozoa these granules in the Sertoli cells are fewer. The immature sperms dive into the Sertoli cells and there acquire their tails, which consist almost entirely of lipoid, lecithin and some cholesterin.

Evidence is given to show that the lipoid granules seen in the interstitial tissue and in the cells lining the basement membrane of the tubules constitute the raw material from which the nucleic acid, necessary for active nuclear proliferation and spermatogenesis, is formed. These lipoid granules give the oxidase reaction owing to the presence of traces of unsaturated fatty acid. Decomposition and recomposition processes are brought about by catalytic action of the iron of the cell nucleus upon the oxidase, causing molecular oxygen (O_2) to be converted into free atomic oxygen O-O on the surface of the granules.

Reasons are given for supposing that these lipoid granules are derived from the lipoid store in the adrenal cortex. Elliot's work, showing that the lipoid content of the cells of the adrenal cortex is diminished in microbial intoxication, is confirmed. However much it is diminished on this account, the lipoid granules in the testes are not appreciably so. This may explain the fact that prolonged microbial toxemia does not arrest spermatogenesis. It seems as if the lipoid substance in the testes acted not only as the phosphorized raw material of nuclear activity, but as a protective barrier against the effects of circulating microbial poisons.

The remainder of this series of papers deals with changes in the testes in cases of general paralysis, dementia precox and other forms of insanity. In general no correlation between psychoses and testicular conditions could be determined.—L. G. K.

(TESTES) Growth of testicular grafts in the goat (Evolution des greffes testiculaires sur le bouc). Growth of testicular grafts in the ram (Evolution des greffes testiculaires du belier). The testicles in the aged (Testicules des vieillards). The conditions which cause variations in the growth of the testicular epithelium (Des conditions qui font varier l'evolution de l'epithelium testiculaire). Retterer (Ed.), C. R. Soc.

Biol. (Paris), 1919, **82**, 1022-1025, 1099-1102, 1123-1126, 1153-1156.

These papers deal with the histological changes in the testes and testicular grafts under various conditions. The general conclusion seems to be that when the epithelial cells of the tubules are transformed into connective tissue, they lose a plasma, which, when resorbed determines the secondary sex characters.
—T. C. B.

(TESTICLE) Geroderma genito-dystrophico (lean type) with delayed hereditary lues [Geroderma (Senilismo) génito distrófico de Rummo y Ferrarini (tipo magro), por lues hereditaria tardía]. Castex (M. R.) and Waldorf (C. P.), Rev. Assoc. Med. Argentina, 1919, —, 177-178 (Aug.-Sept.).

A typical case is described to which the authors attribute a syphilitic origin (hereditary). A bit of testicle removed for examination showed marked sclerosis with disappearance of the glandular elements.—B. A. H.

(TESTIS) Transplantation of testicle in man (Über Hodenimplantation beim Menschen). Kreuter (E.), Zentralbl. f. Chir. (Leipzig), 1919, **46**, 954.

The removal of tubercular testicles was followed by a loss of sexual desire which reappeared after the implantation of a normal testicle. The desire was accompanied by the ability to have erections.—J. K.

TESTICLE Implantation. Voncken (S.), Archives Médicales Belges (Brussels), 1919, **72**, 64.

Voncken reviews what has been accomplished in this line, citing Lydston's work and Steinach's experimental research, the clinical case reported by Steinach and Lichtenstern and Rohleder's experimental and clinical experiences with treatment of homosexual perversions. He then describes Voronoff's "painstaking experimental research carried on for more than a year at the College de France. He studied on sheep and goats the influence of transplantation of testicle tissue. He found it easy to follow by the external manifestations the changes in the functioning of the internal secretion of the testicles." Castration of a young goat arrested the development of the horns. He conducted three series of experiments: In the first series, testicle implantation in the young castrated animals restored in a short time their normal vigor. The growth of the horns, arrested by the castration, began anew as soon as the implant had grown into intimate connection with the adjacent tissues. In his sec-

ond series of experiments implantation of testicle tissue in females transformed their character: Gravid goats were delivered normally, but they exhibited marked repulsion for suckling their young and other maternal cares. The testicle implant seemed to stifle all the instincts of maternal affection. In his third set of experiments, he implanted the testicle tissue in rams and goats 14 to 15 years old. This age in these animals corresponds to the human age of 65 to 70. The senile animals, with sluggish reactions, underwent a radical transformation within periods ranging from a few days to three weeks after the implantation of the testicle graft. Voncken emphasizes that the photographs which Voronoff exhibited with his report at the recent Congrès de chirurgie at Paris testified most significantly to the truth of his statements. One of the goat bucks impregnated a female.

"Counter experiences were equally significant," he adds, "removal of the graft reducing the animal to his former senile condition. A new implantation restored anew les avantages de la jeunesse." In view of such an ensemble of facts," Voncken comments, "can one doubt further the preponderant influence of the internal secretions of the testicle on senile phenomena?" He adds that Voronoff's histologic study of the grafts showed that the vessels growing into the graft do not reach the center in time to perpetuate its vitality. The center dies and is resorbed; only the periphery retains its vitality. Hence small grafts take better than large ones. He only succeeded in keeping two alive out of thirty whole testicles implanted, while the partial grafts were constantly successful. A number of small grafts can be implanted under the skin in any part of the body, or in the peritoneal cavity, or under the vaginalis in the scrotum. He found this latter technic the most reliable. Voncken adds that Lydston's experience has given a practical confirmation of the experimental results thus realized in the laboratory. "Organotherapy is invading more and more the different chapters of pathology, and this surgical opotherapy seems to augur a fruitful future which is only the natural sequence of the marvelous results already realized with transfusion of blood." He suggests the possibility that grafts of thyroid tissue might be used in treatment of cretinism. "With any endocrine insufficiency, some harmless surgical intervention might definitely restore the organic balance." (Voronoff's report of improvement in a case of myxedema after implantation of monkey thyroid tissue was summarized in J. Am. M. Assn., 1914, **63**, 810. (Abst. J. Am. M. Ass., **74**, 62.

(TESTIS) Mitoses of seminal epithelium in the cat (Les mitoses de l'épithélium séminal du chat). de Winiwarter (H.), Arch. de Biol., 1919, **30**, 1.

A cytological study of spermatogenesis in the cat, together with a short description of the interstitial cells. These latter are said to resemble those of the ovary in the cat. They contain lipoid droplets and some small bodies which stain readily with safranine, the number of two kinds of bodies varying inversely with each other in different cells, and hence the author believes it possible that the lipoid is formed from the other body as has been described for sebaceous cells. He found a few examples of mitoses among these interstitial cells, the number of chromosomes being about 35. These mitoses prove that the interstitial cells are able to multiply as in the ovary, but the rarity of mitoses indicates that some of the cells are transformed from the stroma.—E. R. H.

(TESTIS) Orchidopexy for inguinal testicle (Zur Orchidopexie bei Leistenhoden). Glass (E.), Zentralbl. f. Chir. (Leipzig), 1920, **47**, 174.

Of technical surgical interest.—J. K.

(TETANY) Edema in children with tetany (Oedembildung bei tetaniekranken Kindern). Bossert, Deutsche med. Wchnschr. (Berlin), 1920, **46**, 45.

Evidence is presented tending to show that in tetany a low salt diet may produce edema. The eating of porridge with an egg gave rise to tetanic contractions and edema.—J. K.

(THYMUS) Certain peculiarities of thymus development (A proposito di alcune particolaritá di svilluppo del timo, in Amia calva e Lepidosteus osseus). Castellaneta (V.), Arch. ital. Anat. e. Embryol. (Firenze), 1917, **15**, 218.

A discussion of the development of the thymus in these bony fishes. In the case of Amia, Castellaneta agrees with Hammar that the original epithelium forms a reticulum not spontaneously, as Hammar says, but as the result of mechanical forces, as stated by Maximow. At the time of the early reticulum transformation there are present a few lymphocytes and large numbers come into the gland coincident with its later formation.

It is decided that some of the small lymphocytes are formed in the thymus from larger cells, but that most of them come in from the mesenchyma. The thymus of ganoids is regarded as a phylogenetic descendent of several primitive thymic anlagen fused together.—M. M. H.

(THYMUS) Les réversions épithéliales dans le thymus humain. Dustin (A. P.), Arch. Zool. expér. et gén. (Paris), 1917, **56**, 73-87.

The author describes some small bodies of cells often found in the thymus of mammals, birds, reptiles and amphibians, and which represent a reversion to the original epithelial type. These bodies sometimes are cystic and lined with ciliated epithelium, and sometimes are compacted, resembling parathyroid tissue.

In many they become more numerous in older persons in whom the thymus has undergone involution.

As regards the various cells found, the author disagrees with Hammar, who believes that the original embryonic thymus (epithelium) forms the reticular cells of the adult which in turn give rise to all the atypical thymus elements,—epithelial nodules, ciliated cysts, Hassl's corpuscles, epithelioid cells, myoid cells and mucous cells,—and that the small thymus cells which are true lymphocytes enter the thymus from the outside. Dustin believes that the small thymic cells are derived directly from the original epithelium (stem cells) and that the epithelioid cells and Hassl's corpuscles are mesenchymal in origin. He holds that the thymus is in some manner associated with nuclein metabolism, acting as a sort of storehouse for nuclein substance.

—E. R. H.

THYMUS and tetany. Honeyman (J. T.), J. Physiol. (Lond.), 1919, **53**, 207-210.

Observations on young guinea pigs in which the thymus is functionally active, show that when the thymus and parathyroids are both removed, typical parathyreoprival tetany develops, with increased electrical excitability. The author believes that this disproves Uhlenhuth's claim that the thymus secretes a substance capable of producing tetany.—T. C. B.

(THYMUS) Pathology of Graves' disease (Die pathologischen Grundlagen der Basedowschen Krankheit. Nach vergleichende pathologischen und klinischen Studien). Klose (H.), Bruns. Beitr. z. Anat. Phys. Path. usw., 1916, **102**, —. (Abstract in Folia Hematol. by Müller.)

The author says that in Basedow's disease the thymus is next to the thyroid in importance, in that it undergoes morphological changes ("epithelization"). The thymus can "thymusize" the thyroid. The two glands can cause a general hyperplasia of the lymphoid system.—E. R. H.

THYMUS, Involution of the—in birds. McCarrison (Robert), Indian J. Med. Res. (Calcutta), 1919, **6**. 557-559.

McCarrison studied the thymus in a large number of pigeons, varying in age from sixty-one days to two years, to determine the relationship of the size of the gland to the age and sex

of the bird and also to the body weight under different conditions. The following facts were elicited: The thymus is twice as large in the male as in the female. In the pigeon the involution of the thymus is dependent upon factors other than the maturation of the sexual functions. These factors are mainly nutritional. Starvation causes thymic atrophy out of all proportion to loss of body weight. Deprivation of "B" accessory food factors causes a like atrophy which is marked. Excessive feeding with grains and butter causes no increase in size in the thymus as it does in most of the other organs.—I. M.

(THYMUS) Case of enlarged thymus gland and some remarks on status lymphaticus. Newton (R. C.), Am. J. Med. Sc. (Phila.), 1919, **158,** 534-544.

A man of 20 years complained of lassitude and dyspnea beginning two weeks after a cold plunge when overheated. Muscular weakness progressed, soft edema of the neck, chest and shoulders developed. Examination revealed a double cardiac murmur. A skiagram showed the presence of a thymic shadow nearly covering the pericardium. Six X-ray treatments at weekly intervals resulted in the patient's return to work and in his resuming his active athletic life. One year later a run of about one mile resulted in the return of his former symptoms and the development of an aortic aneurysm. A rupture of the aneurysm about a year after this time caused his death. No autopsy could be obtained. The case report is followed by a brief summary of the literature on the anatomy, the growth and involution, the physiology, and the pathology of the thymus gland and status lymphaticus.—F. C. P.

(THYMUS THYROID) Extirpation of the thymus in Graves' disease (Thymusexstirpation bei Basedowscher Krankheit). Nordmann, Deutsche med. Wchnschr. (Berlin), 1920, **46,** 109.

The partial resection of the thyroid and the removal of the thymus in a girl of 20 years having suffered for 3 years from Graves' disease, resulted in a general improvement, although the tachycardia remained. The author believes that it is necessary in every operation for Graves' disease to look for the thymus. In cases with symptoms of status lymphaticus or hypoplasia of the sex organs the thymus should first be removed before anything is done with the thyroid. In 11 fatal cases of thyroidectomy there was found a persistent and enlarged thymus. In one other case in which thyroidectomy only was performed, the symptoms of the disorder did not subside and the patient died some time later. At autopsy the thymus was found present.

—J. K.

(THYMUS) Thymusectomy and its relationship to rickets. Renton (J. Mill) and Robertson (Madge E.), J. Path & Bact. (Cambridge), 1916-17, **21**, 1-13.

The claims of Klose and Vogt and of Matti that extirpation of the thymus gland in puppies leads to a sydrome somewhat resembling rickets, but associated also with other growth and psychic abnormalities, have had wide publicity. That these claims have failed of confirmation at the hands of various competent observers seems less generally known. The authors report an attempt to confirm the earlier findings. The thymus was completely removed from 8 puppies from 13 to 25 days old. These were kept for varying periods up to several months. The experiments were controlled by keeping other dogs under the same environmental conditions. It was found that there was not the slightest effect ascribable to the loss of the thymus. Unfavorable environmental conditions alone were found to produce ricketslike changes such as were described by the earlier investigators, and it was concluded that such was the probable source of these changes.—R. G. H.

(THYMUS) Myasthenia gravis pseudoparalytica. Steckelmacher, Münch. med. Wchnschr. (Munich), 1919, **66**, 1504.

In the case described no persistent thymus was found.
—J. K.

THYMUS gland in infants, Normal and pathological anatomy of the—. Vasyutochkin (A. M.), Kharkov Med. J., 1916, **22**, 160, 215.

V. summarizes his extensive data on the weight of the thymus glands of infants in health and disease. During the first year of post-natal life the thymus increases in weight uninterruptedly from 7 to 12 grams. The weight of the thymus of males is greater than that of females. The weight of the thymus of well nourished infants exceeds by 1½ times the weight of the gland of emaciated infants. Inherited syphilis in most cases produces a sharp atrophy of the thymus. Gastro-intestinal diseases produce a hyperplasia of the thymus. Diseases of the respiratory system (non-tuberculous) produce no change in the weight of the thymus other than a decrease corresponding to the disturbance in nutrition. Similarly there is no effect on the thymus in septic cases. In tuberculosis and diphtheria the weight of the thymus is diminished; but only a few of these cases were investigated.—S. H.

The THYMUS; a summary. Wooley (P. G.), J. Lab. & Clin. Med. (St. Louis), 1916-17, **2**, 632-637.

A general article giving an interesting review of the literature on the physiology and functional pathology of the thymus. —R. G. H.

(THYROID) Considerations in the medical treatment of goitre. Anders (J. M.), Trans. Am. Therap. Soc. (N. Y.), 1916, **16,** 85-90.

A brief summary of the kind of treatment best suited to the various types and stages of thyroid disorder. Emphasis is laid upon the necessity for differentiating these factors. For definite hypothyroidism sodium iodide in gradually ascending doses, beginning with five grains three times a day, up to a maximum of ten grain doses is recommended. When gastro-intestinal fermentation is an accompaniment, thyroid extract is indicated in beginning doses of one grain, three times a day, to be slowly increased if the pulse reaction is not noticeably affected, up to a maximum of five grains daily. In general this treatment is contraindicated in Graves' disease. In the latter, the problem is to remove, as far as possible, the recognizable causes, such as emotional excitement, shocks, tuberculosis, rheumatism, syphilis and intoxication from the intestinal canal. Quinine hydrobromide and antithyroidin have given good results in the author's hands.—F. S. H.

(THYROID) Blepharochalasis with goiter and doubling of the mucous membrane of the upper lip (Blepharochalasis mit Struma und Schleimhautduplicatur der Überlippe). Ascher, Münch. med. Wchnschr. (Munich), 1919, **66,** 1365; Deutsche med. Wchnschr. (Berlin), 1919, **45,** 1400; Wiener klin. Wchnschr. (Vienna), 1920, **33,** 73.

The author reports having sometimes seen the combination of the three conditions mentioned in the title. This combination has never previously been described and he considers it a sign of an abnormally functioning thyroid.—J. K.

(THYROID) The treatment of toxic goiter. Batchelor (F. S.), N. Zealand Med. J. (Wellington), 1918, **17,** 214-218.

Surgical treatment, either ligation or excision, is recommended for these cases.—F. S. H.

(THYROID) The development of Basedow's disease as an increasing cause of post-war female sterility (L'accroisement d'une cause de sterilité feminine depuis la guerre par la developpement de la maladie de Basedow). Blondel (R.), Bull. gen. therap. (Paris), 1919, **170,** 816-823.

The text of the argument lies in the author's observations that Basedow's disease is commonly accompanied by a marked diminution in the size of the uterus which he considers clearly attributable to disordered thyroid and that such atrophic uteri tend toward sterility. Therefore, since emotional shock or stress is admitted as one of the possible causes of thyroid disorder, and since women are notably emotionally unstable, the sequence of war, emotions, Basedow's disease and small uteri will tend to result in an increased sterility among the females of France.
—F. S. H.

(THYROID) Long-standing case of goitre cured by inunctions. Bazett (Henry), The Practitioner (Lond.), 1919, **103,** 389-390.

A typical case of exophthalmic goitre with advanced symptoms was apparently cured by inunctions of the following fomula:

Glyc. Belladonnae	1 part
Ung. Iodi	2 parts
Ung. Hydrarg. Co.	4 parts
Ung. Plumbi Subacet.	6 parts

15 m. Donovan's solution were given internally over part of the period of treatment. One lobe of a large firm goitre had been removed at a previous operation which had caused only a temporary relief from the tachycardia, tremor and exophthalmos. Twenty days of the above treatment caused a marked improvement in the symptoms and a very noticeable dimunition in the size of the tumor. One year later there were remaining no signs or symptoms of the disease. The author claims several other cures on less difficult cases.—I. M.

(THYROID) The treatment of goitre by radiation. Boggs (R. H.), Am. J. Roentgenol., 1919, **6,** 613-624.

A restatement of the indications and contraindications for the roentgen or radium treatment of goitre.—J. F.

(THYROID) An address on goitre. Boyd (H. J.), Brit. Med. J. (Lond.), 1919 (ii), 169-170.

According to the author's observations goitre was almost unknown 25 years ago in the section of Ireland in which he is practicing, but at present is extremely common. The water supply apparently had some connection with a number of the cases, since a change caused a decrease in size or disappearance of the goitres. Also when several people in one house were affected, the one who drank the most water was observed generally to possess the largest goitre. Some who drank nothing but boiled

water in the form of tea, etc., were also affected. Water from one well was found to be infested with micro-organisms similar to those described by McCarrison as a cause of goitre.—L. G. K.

(THYROID) Suppurating thyroid: complication of blenorrhagia. (Thyroidite suppurée: complication de la blenorragie). Buscarlet (F.), Bull. mem. Soc. de Chir. (Paris), 1917, **43**, 2286-2288.

A detailed clinical report of progress and treatment of a case of septicemia of blenorrhagic origin which terminated in recovery after discharge of contents of a thyroidal abscess. —F. S. H.

(THYROID) Further course of an interesting case of Flajani-Basedow's disease (Ulteriore decorso di un interessante caso di morbo di Flajani-Basedow). Capezzuoli (Cesare), Riv. Critica di Clin. Med., 1919, **20**, 469.

The author reports a case which he has followed since 1913, when the patient was 35. After a partial thyroidectomy in 1915, she improved and was almost well until the fall of 1916, when a psychic trauma started the syndrome again with considerable swelling of the residual thyroid. Besides nervous and digestive symptoms, tetany developed. Improved, yet not cured, she went back home and married. After the marriage there was a considerable improvement of all her symptoms, which remained favorable despite a confinement in August, 1917. She then lost her husband, and felt very low in spirit, yet there was no recrudescence of the Basedow symptoms, and the thyroid remained small.

The author emphasizes the fact that in this case marriage, pregnancy and nursing, instead of bringing back the symptoms seem to have favored recovery. Even her character, which had been, during the sickness, changeable and intolerant, underwent a complete modification, becoming calm and steady.—G. V.

(THYROID) The facilitation of difficult strumectomy (Erleichterung schwieriger Strumectomien). Claessen (M.), Zentralbl. f. Chir. (Leipzig), 1920, **47**, 9.

Of technical surgical interest.—J. K.

(THYROID) Consideration of the surgical treatment of exophthalmic goiter. Clark (P. S.), Clinique (Chgo.), 1917, **38**, 227-231.

A brief review in which because of the low mortality of 4% or less, and the high percentage of cures or improvement after

operation, the author strongly advocates surgical interference in cases of exophthalmic goiter.—F. S. H.

(THYROID) A case of exophthalmic goitre and anoci-association. Corner (Edred), Brit. J. Surg. (Bristol), 1916, **3**, 568-569.

The operation for removal of a hyperplastic thyroid was modified by Corner by the introduction of Crile's principle of anoci-association. As a preparatory measure the skin surface over the gland was painted with picric acid solution. Three days later thyroidectomy was performed under nitrous oxide anesthesia. Quinine-urea hydrochloride solution was injected into the subcutaneous tissues before these were incised and then into the tissues surrounding the thyroid itself before it was removed. Recovery with marked improvement in the symptoms was very prompt and satisfactory.—I. M.

(THYROID) Medical treatment of exophthalmic goitre (Tratamiento médico del bocio exoftálmico). Dominguez (C.), Rev. Assoc. Méd. Argentina (Buenos Aires), 1919, **31**, 370-374.

A general discussion of the dietary, medical, and surgical treatment of exophthalmic goitre. Although medication produces amelioration in the majority of cases it is rare that a cure is obtained.—B. A. H.

(THYROID) The medico-legal significance of trauma as an etiologic factor in Basedow's disease (Graves' disease, exophthalmic goiter). Drysdale (H. H.), Ohio State Med. J. (Columbus), 1917, **13**, 310-316.

This paper presents the case reports of four litigants out of a total of thirteen, all of whom were seeking financial recompense for disabilities and ill health alleged to have resulted from trauma, who were found to be afflicted with exophthalmic goiter. The author is of the opinion that although the disease was alleged to have been caused by trauma, there is conclusive evidence that there was in these cases an inherent predisposition to the malady. It is Drysdale's opinion that the degree of physical violence had little, if any, significance, and whatever harm was done in this respect arose from shock and emotional stress acting through an unstable nervous and psychic constitution. Trauma then becomes only an exciting factor in the etiology.
—F. S. H.

(THYROID) The constitutional disturbances which come with chronic goiter. Dowd (C. N.), J. Am. Assn. (Chgo.), 1917, **69**, 614-619.

The paper is a report of 37 cases of chronic goiter selected from a total of 181. The average duration of the goiter in the patients studied was ten years; the average duration of the more disturbing symptoms was one and one-tenth years. The surgical interference consisted in removing about two-thirds of the enlarged glands, the posterior capsules and adjacent gland tissue being regularly left in position. In one instance boiling water was injected with excellent results. In studying the later histories of this group of patients one has been observed fourteen years; one has been followed into the fifth year; five into the fourth; six into the third; twelve have been followed into the second year, and seven into the first. All made good recoveries from the operation. Twenty-seven are reported free from symptoms and in excellent health; eight are greatly improved; two, respectively, eleven and four months after their operation, are far from well. The constitutional disturbances have accordingly been largely relieved.—F. S. H.

(THYROID ADRENAL) Lymphatic tissue in the thyroid in Addison's disease (Über das Vorkommen lymphatischer Herde in der Schildrüse bei Morbus Addisonii). Dubois (M.), Berlin. klin. Wchnschr., 1919, **56**, 1178.

Large centers of lymphatic tissue may be observed in the thyroid in cases of Addison's disease. Apparently they are not caused by inflammation but by a chronic irritation of the thyroid gland following abnormal adrenal function. It is also possible that they are a manifestation of the status thymo-lymphaticus which is often present in this disorder.—J. K.

(THYROID) Skin complications in Graves' disease (Complications cutanees di la maladie de Basedow). du Castel (J.), Paris Médical, 1919, **31**, 382-385; Abst. from La Riforma medica, 1919, **35**, 509.

Numerous cutaneous complications are found in this syndrome, part of which the author claims to be common to all neuropathic conditions, some exclusively from dysfunction of the thyroid, and some from secondary endocrino-sympathetic conditions. He differentiates them into vasomotor, trophic, toxic and microbic. To the first division belong flushing, edema, and purpura; among the trophic manifestations are melanoderma, seldom vitilligo and scleroderma and alopecia. Burney Yeo has reported the case of a patient in whom, after hypertrophy of the right lobe of the thyroid, left exophthalmos and fall of the hair of the left eye-brow occurred and in whom, when the left lobe started to hypertrophy, analogous symptoms referable to the right eye appeared. Toxic erythema—especially urticaria—

is frequent; and according to some authors, furunculosis, pyodermatitis and eczema are connected with dysfunction of the thyroid, as is indicated by subsequent development of exophthalmic goitre in some patients with a tendency to recurring attacks of these maladies.—G. V.

(THYROID) Papilloma of the larynx. Report of a case treated with radium, with resultant chronic diffuse thyroditis. Duffy (Wm. C.), Johns Hopk. Hosp. Rep. (Balt.), 1919, **18**, 417-438.

A Negro boy, 3 years of age, was treated with radium for papilloma of the larynx. At autopsy there was found, among other pathologic conditions, a chronic diffuse thyroiditis of wide extent. The connective tissue was overgrown and had encircled the acini and even invaded them, causing involution. The fibrosis had spread through the gland capsule also and invaded surrounding parts. The acini were small for the most part and the epithelium mostly collumnar or flat. Colloid was scanty. In many acini was seen faintly staining granular material regarded as representing much attenuated colloid. In acini of various sizes were seen groups of lining cells with both nucleus and cytoplasm poorly stained. In the thickened stroma were found occasional clumps of epithelial cells apparently residuals of destroyed acini. In numerous acini were seen groups of exfolliated epithelial cells the cytoplasm of which exhibited eosinophilic tendencies greater than normal. Red blood cells also were seen, but were regarded as normal. The resulting histologic picture was closely similar to that of "thyroiditis" as first described by Riedl in 1896.—R. G. H.

(THYROID) Experimental studies of Basedow's disease (Experimentelle Untersuchung der Basedow'schen Krankheit). Eiger, Cor.-Bl. f. Schweiz. Aerzte. (Basel), 1916, **46**, 1567-1568.

The author found that the feeding to rats of preparations of the thyroid gland caused flooding of the blood with the glandular products, which phenomenon can be utilized as a clinical-biological method of testing thyroidal activity. Correlated with this is the fact that the blood plasma of six cases of Basedow's disease enhanced the action of adrenalin, while the plasma from two cases of struma gave negative results. E. claims to have objectively proven the presence of the specific thyroid secretion in the blood of the vena thyroidea in man and animals, and is convinced that thyroid extracts enhance the automatic contraction and movement of the isolated intestine. Very strong doses of the extract inhibit the movements and bring the peristalsis to a standstill.—F. S. H.

(THYROID) Clinical forms of Basedow's disease (Formas clínicas de la enfemedad de Basedow). Escudero (P.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31**, 278-309.

Delimination and classification of the various clinical types of Basedow's disease.—B. A. H.

(THYROID) Surgical treatment of exopthalmic goiter (Tratamiento quirúrgico del bocio exoftálmico). Finochietto (R.), Rev. Assoc. Méd. Argentina (Buenos Aires) ,1919, **31**, 342-352.

A general discussion of the subject in which early surgical procedures are advocated.—B. A. H.

(THYROID) The surgery of thyrotoxicosis. Frank (L. W.), Kentucky Med. J. (Bowling Green), 1920, **18**, 10-15.

Toxic goiters should be immediately removed.—H. W.

(THYROID) The importance of the Basedow symptoms in the early diagnosis and treatment of pulmonary tuberculosis (L'importanza dei segni di Basedow nella diagnosi precoce e nella cura della tubercolosi polomonare). Gallotti (A.), Riforma medica (Naples), 1920, —, 88-92.

The author reports six cases of symptomatology of Basedow in incipient tuberculosis, where the first symptom, sometimes contemporary with and sometimes preceding the tuberculous symptoms, is enlargement of the thyroid. Such enlargement he considers as of toxic origin. Basedow symptoms may be regarded in many instances, as probable symptoms of latent pulmonary tuberculosis. Enlargement of the thyroid often appears as a complication in tuberculosis and gives to the disease a typical character with benign evolution. In cases of pulmonary tuberculosis with Basedowian complication the treatment of the thyroid gland may favorably influence the course of the pulmonary lesion, even to a full recovery.—G. V.

THYROID and acquired immunity. The influence of thyroidectomy (in the rabbit) upon the formation of heterohemolitic sensitizing substances [Thyroide et immunité acquise. Sur l'influence de la thyroidectomie (chez le lapin) sur la formation de sensibilisatrices hétérohemolytiques d'immunisation]. Garibaldi (A.), C. R. Soc. de Biol. (Paris), 1920, **83**, 15-16.

As the experimental results of Fjelstad, Launay and Levy-Bruhl and Frouin do not agree, the problem has been reinvestigated. This first note gives the results of thyroidectomy on the formation of hemolytic immune bodies. Rabbits were used: 4 thyroidectomised, and 3 controls in which the gland was laid

bare, but not touched. Protocols are given and the conclusion arrived at that the serum shows a hemolytic titer superior to that of the controls. Thyroidectomy seems to favor the formation of antibodies.—T. C. B.

(THYROID) Iodine action in goiter (Zur Joddarreichung bei Kropf). Grumme (D.), Cor. Bl. f. Schweiz. Aerzte (Basel), 1916, **46,** 494-499.

A review of the literature concerned with the mode of action and form of administration of iodine in goitrous conditions. —F. S. H.

THYROID, Observations on the—. Hagerty (J. F.), J. Med. Soc. New Jersey (Orange), 1917, **14,** 341-348.

A general review of the known data concerned with the diseases of the thyroid and their treatment.—F. S. H.

(THYROID) Etiology of Basedow's disease (Etiología de la enfermedad de Basedow). Hardoy (P. J.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31,** 228-236.

It is the opinion of the author that Basedow's disease arises in individuals constitutionally predisposed to the disorder. Among the etiological causes he has observed the presence of syphilis in 55 per cent of the cases and tuberculosis in 18 per cent.—B. A. H.

(THYROID) Operation for intrathoracic goiter (Zur Operation der intrathoracale Struma). Hartert (W.), Zentralbl. f. Chir. (Leipzig), 1919, **46,** 929.

Of technical surgical interest.—J. K.

The THYROID-PARATHYROID mechanism, The significance of—with special reference to its metabolic function. Hewitson (W. A.), Univ. Durham Coll. Med. Gaz. (Newcastle), 1916, **16,** 45-51.

A general review of the physiology and functional pathology of the glands mentioned.—R. G. H.

(THYROID) The treatment of thyrotoxicosis by means of roentgen ray. Holmes (G. W.) and Merrill (A. S.), J. Am. M. Assn. (Chgo.), 1919, **73,** 1693.

A report of a series of 152 toxic thyroid cases treated by x-ray. The authors believe that it is possible to decrease the

activity of the thyroid gland and probably to destroy its glandular structure by such treatment.—F. C. P.

(THYROID) Pathogenesis of Basedow's disease (Patogenia de la enfermedad de Basedow). Houssay (B. A.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31**, 237-277.

Detailed discussion of the present status of this problem.—B. A. H.

(THYROID) Chemical identification of the thyroid hormone. Kendall (E. C.), Scientific Proceedings, Am. Soc. Biol. Chem. XIII. J. Biol. Chem. (Baltimore), 1920, **41**, xxii.

A brief resume of the chemical nature of the iodine-containing compound of the thyroid which has been reported elsewhere in Endocrinology.—F. S. H.

(THYROID) "Funnel breast" in Graves' disease (Einzeihung des Brustkorbes bei Basedow). Just, Deutsche med. Wchnschr. (Berlin), 1919, **45**, 1373.

The author describes this as the second case he has seen of a retraction of the thorax in the region of the apex of the heart accompanying Graves' disease in a girl of 13. He suggests that this condition may perhaps be found somewhat frequently in this disease when occurring in children.—J. K.

(THYROID) The prevention of simple goiter in man. Kimball (O. P.), Rogoff (J. M.) and Marine (D.), J. Am. M. Assn. (Chgo.), 1919, **73**, 1873.

A report of the re-examination of girls (5th to 12th grade) in the public schools of Akron, Ohio, 19 months after the beginning of the prophylactic use of iodine. Tabulated reference is made to reports published in 1917 and 1918. The treatment consisted in giving.2 gms. of sodium iodide, in 0.2 gm. doses, for ten consecutive school days, repeated each autumn and spring in those taking the iodine. No enlargements, in previously normal cases, were seen, while 15.9% of those not taking the prophylactic treatment are reported as showing definite enlargement. A distinct decrease in size of the slightly enlarged glands was noted in 38.1% of the pupils using the iodine, while only 27.8% of those listed as not taking treatment showed this decrease in size. Similar therapeutic effects were noted in the cases classed as having moderate or marked enlargements of the thyroid gland.
—F. C. P.

(THYROID) The problem of the etiology and pathogenesis of endemic goiter and cretinism (El problema de la etiología

y patogenesis del bocio y cretinismo endémico). Kraus (R.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31,** 206-227. Rev. del Inst. Bact. del Dep. Nacional de Higiene (Buenos Aires), 1919, **2,** 309-323.

A discussion of the theory of the infectious origin of goiter. Goiter exists in the Argentine in the mountainous regions while the "Vinchuca" or triatoma infestans occurs on the plains. There is thus no relation between endemic goiter and Trypanosomiasis crusi.—B. A. H.

(THYROID) Dominant sex-linked inheritance and heredity of the Basedow's diathesis (Über dominant—geschlechtsbegrenzte Vererbung und die Erblichkeit der Basedowdiathesis). Lenz (F.), Arch. f. Rass. u. Gesellsch. Biol. (Berlin), 1918, **13,** 1.

The author points out the fact that many inherited defects such as color blindness, progressive muscular atrophy, inherited optic atrophy, some near-sightedness, some nystagmus, albinism of the eyes, etc., are sex linked characters dominant in males (heterozygotic), recessive in their daughters (homozygotic) and appear again in their grandsons, following the laws of genetics and easily explained. There are also sex-linked defects which appear dominant in females.

In his study Lenz included as of Basedow's diathesis (tendency toward goitre) patients with any or all of the following symptoms: classical syndrome (exophthalmos, tachycardia and struma), fine tremors of the fingers, temperature easily raised, moist glistening eyes, enlarged heart, dyspnoea, anxiety, insomnia, night sweats, troubled dreams, and general debility. He describes several families, following one for eight generations, in which there seems to be some evidence of hereditary tendency to goitre.—E. R. H.

THYROID, A consideration of the treatment of the disease of the—with special reference to so-called hyperthyroidism. Lichty (J. A.), Am. J. Roentgenol., 1919, **6,** 608-611.

This paper by an internist is a plea for the prompt employment of the proper treatment be it medical, surgical, or X-ray. The author has evolved a classification of goitre patients which has been very helpful to him as a working basis for the determination of the proper treatment in the individual. According to this plan, patients having diseases of the thyroid gland are divided into four groups:

I. Those patients with thyroid disturbances without any apparent pathological change in the gland. A study of the basal metabolism and possibly the ap-

plication of the Goetsch test may be necessary to confirm the diagnosis in the more doubtful cases. These are strictly medical cases.

II. Those patients having an enlargement of the thyroid, but in whom, from the age of the patient and the absence of certain symptoms, the diagnosis of adolescent goitre may be made. Such patients need only prophylactic care; if more than this is required they belong in the next group.

III. Those patients having an enlarged thyroid with definite hyperthyroidism active or at times potential. This enlargement may be due to Graves' disease, colloid goitre, cyst, adenoma, or any combination. This group may be medical for a while and later require surgical or x-ray treatment.

IV. Those patients having definite pathology of the gland with disturbances in function. This group includes neoplasms, simple colloid goitre, tuberculosis, lues, and other chronic infections of the gland. This group is always surgical, but presents an enticing field for investigation with the x-ray.

From the author's experience, he concludes that surgery has the larger field of application. It also has the advantage of furnishing definite information in that tissue removed may be studied. The earlier that hyperthyroidism is recognized, the more likely is medical treatment to be sufficient and give permanent results. In hyperthyroidism the roentgenologist and the surgeon can at best only break through a vicious circle for which the internist may or may not be responsible.—J. F.

(THYROID) Goiter and cretinism in the Argentine Republic (El bocio y el cretinismo en la Republica Argentina). Lozano (N.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31,** 169-205.

A general consideration of the distribution of this disorder in the Argentine Republic, following the various censuses.

—B. A. H.

(THYROID) Goiter, Some surgical aspects of. Mann (A. T.), Journal-Lancet (Minneapolis), 1916, **36,** 703-706.

Thyroidectomy should not take place until the patient has given no response to medical treatment. This does not apply to a diseased tissue which causes constant autoactivation of the whole gland or marked pressure. As treatment, rest, the judicious use of iodine, antithyroid serum, the ligation of the blood vessels and nerves of the thyroid, and partial thyroidectomy,

each has its place according to the case in question. The author gives the technic of the larger operation, in which he puts emphasis on the care needed to prevent injury to nerves, to prevent the removal of the parathyroid and of the entire thyroid.
—F. S. C.

(THYROID) The absorption of potassium iodide by perfused thyroid glands and some of the factors modifying it. Marine (David) and Feiss (H. O.), J. Pharm. & Exper. Therap. (Balt.), 1916, **7**, 557-576.

Experiments were conducted to determine whether the thyroid cells exhibit a specific affinity for iodine or not and to compare their activity along this line with that of other tissues. The thyroid gland, the spleen and the kidney were separately perfused both in vivo and in vitro with Ringer's solution containing KI. Hyperplastic glands of otherwise normal dogs were used in all cases. From their studies the authors draw the following conclusions: Artificially perfused thyroids take up and retain KI to the same extent as do in vivo-perfused thyroids. KI is not absorbed by the cells of the spleen, kidneys, liver or muscles. The amount of KI absorbed by the thyroid is independent of the concentration of KI in the perfusate. Only surviving glands exhibit the ability to take up the KI. KCN inhibits this activity. Small amounts of iodothyreoglobulin wash out during perfusion with defibrimated blood. Autolysing glands do not take up KI, but give up what was previously stored. The KI stored in surviving cells is pharmacologically inactive.—I. M.

(THYROID) Physio-therapeutic treatment of exopthalmic goiter (Tratamiento fisioterápico del bocio exoftálmico). Marque (A. M.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31**, 333-341.

A general discussion of the subject.—B. A. H.

(THYROID) Pathology and treatment of exophthalmic goiter (Le goitre exophthalmicque. Sa pathogénie. Son tratement). Masson (Guy), These, Geneva, 1918, pp. 172. Abst., J. Physiol. et de Pathol. Gén. (Paris), 1919, **18**, 638.

Masson treats in order the theories of the pathogenesis of exophthalmic goitre and various forms of therapy and follows this with a critique on both. He favors the dysthyroidism theory of pathogenesis. As to treatment, he recommends the serum of thyroidectomised animals, and even the milk of such has been found useful. In either case, however, adequate dosage and continuation for some time is needed. Such therapeutic measures

directed toward neutralization of circulating toxins might well be supplemented by radiotherapy to depress the activity of the thyroid. Surgery is reserved as a last resort for rebellious cases in which prompt measures are essential.—R. G. H.

(THYROID) The pathological physiology of human body temperature (Zur pathologische Physiologie der menschlichen Körperwärms). Mayer (A.), Deutsche med. Wchnschr. (Berlin), 1919, **45**, 1382.

During the war the author observed a number of men with slightly enlarged thyroid glands and a slightly increased temperature, not caused by organic disease. The injection of milk raised the temperature of these patients, a reaction which does not occur in normal persons. The injection of antithyroidin caused the temperature to become normal. Apparently the endocrine organs play a most important part in the regulation of the temperature, since in normal persons the injection of adrenalin or thyroidin raises the temperature and antithyroidin diminishes it. These things are considered as important in the treatment of fever.—J. K.

(THYROID) The basal metabolism in exopthalmic goitre. Means (J. H.) and Aub (J. C.), Arch. Int. Med. (Chgo.), 1919, **24**, 645-677.

The results of the present work substantiate conclusions drawn in a previous paper (J. Am. M. Assn., 1917, **69**, 33). The discussion is based upon 345 observations on 130 patients. The degree of elevation of gas exchange above normal is used as a measurement of thyroid intoxication. Normal and pathological cases were used for controls. The studies were made upon cases of exophthalmic goitre treated either surgically or by exposure to roentgen-rays. The authors believe determinations of basal metabolism very important and valuable for purpose of differential diagnosis of obscure thyroid disease. The results are tabulated. The object of the experiments has been to determine the exact effect of roentgen-ray therapy and partial thyroidectomy in exophthalmic goitre, using the basal metabolism as an index of toxicity. Studies were made of the effect of rest, quinine hydrobromid, roentgen rays and of surgery.

It is the opinion of the authors that treatment by roentgen-rays is first indicated, the result being controlled by metabolic studies; when relief cannot be had by this method, operation is then recommended. It was concluded that in the majority of cases, results after two or three years are equally as good with roentgen-ray as with surgery. With surgery, a rapid fall of metabolism and with roentgen-ray, a gradual progressive fall is noted. There is no mortality with roentgen-rays. Surgical

patients do best who have been previously rayed. Surgical risk is greater in cases of very high metabolism. Routine radiation of exophthalmic goitre with surgery held in reserve is recommended. Surgery is contraindicated in patients whose metabolism is rising in spite of complete rest in bed. Periodic determinations of basal metabolism should be made in management of all cases of exophthalmic goitre.—B. T. S.

(THYROID) Vasomotor symptom of hyperthyroidism. Marañón (G.), Revista Española de med. y. Chir. (Barcelona), 1919, **2**, 598-600.

Marañón found in ninety-two of 100 cases of hyperthyroidism that rubbing the skin in the neck lightly with the fingers made it turn very red in the region of the thyroid, a much brighter red than could be elicited by rubbing the skin in the same way elsewhere. This vasomotor reaction may be more pronounced in the milder cases, and is more distinct in the nervous, in women, in the young, at the menopause, and in persons inclined to sympatheticotony rather than vagotony. He has not seen any mention in the literature of this induced localized erythema in the thyroid region; it may be a uniform or irregular redness, and there may be slight swelling of the red patches.
—J. Am. M. Assn., **74**, 429.

(THYROID) The cause of exophthalmos in Graves' disease. Murray (G. R.), Brit. Med. J. (Lond.), 1916, (ii), 540.

Murray expresses a belief that exophthalmos in Graves' disease is due to an excessive increase in the amount of retro-orbital fat, which mechanically causes protrusion of the eye-ball. Post-mortem findings in a human case and experiments on animals in which melted parafin was injected retro-orbitally led him to this conclusion.—I. M.

(THYROID) Sporadic cretinism caused by a thyreoaplasia of specific origin (Cretinismo esporádico por tireoaplasia de origen específico). Novaro (Raul) and Gonzalez (J. Ortuño), Anales del Inst. Mod. de Clín. Méd. (Buenos Aires), 1919, **4**, 173.

A description of a myxoedematous cretin fifteen years of age and 1.40 m. in height. The parents gave a positive Wassermann reaction, but the patient herself gave a negative reaction.
—B. A. H.

(THYROID HYPOPHYSIS ADRENAL) Interdependence of the function of the ductless glands. O'Day (J. C.), N. Y. Med. J., 1920, **111**, 250-251.

From a brief consideration of the function of the thyroid, adrenal and pituitary the author concluded that no part is played which in any way might make one gland's function dependent upon the functions of others.—H. W.

(THYROID) Three hundred goitre operations (Klinische Erfahrungen bei 300 Kropfoperationen). Orth (O.), Deutsche Ztschr. f. Chir. (Leipzig), 1919, **148**, 360-384.

Orth reviews his experience with 300 goiter operations; the mortality was 0.17 per cent. A number of cases showed the close correlation between the various endocrine glands which surgeons have to bear in mind; for instance, one woman first developed goiter after splenectomy. In another woman the goiter developed at once after removal of a myoma, while Wettergreen has witnessed the subsidence of a myoma as exophthalmic goiter developed. Several have reported increase in the size of the thyroid after removal of both ovaries, and Orth had a case in which the woman aborted three days after resection of the thyroid. Such happenings show the necessity for investigation of the genital organs before operating for goiter. In three cases a moderate form of tuberculosis seemed to be whipped up by removal of a goiter which had been compressing the trachea, and the patients soon died. Clairmont has reported some similar experiences with tuberculosis patients. The blood pressure was high in 70 per cent of Orth's cases, and after the thyroidectomy it dropped below normal, but gradually righted itself in a few weeks. No change in the coagulation of the blood was apparent. Transient albuminuria was evident in ten cases after the operation, not before. One patient had a spontaneous fracture of the femur a year after resection of the thyroid, and she died in six weeks. Orth is inclined to ascribe this fragility of the bones to abnormal conditions such as are observed in the bones of thyroidectomized dogs. The displacement of the trachea should be determined with radioscopy before the intervention, as a guide to the operation. His only recurrences were in the four cases in which radioscopy had been neglected, and the protrusion of the goiter in the depths was not fully appreciated. He had fatal hemorrhage or embolism in two malignant cases, and in one case the esophagus was injured during the operation, as also the trachea in another, but both healed without mishap after suture. Anomalies in the vessels were not infrequent, and this possibility should never be forgotten. In conclusion he warns of the necessity for caution in using disinfectants in this region; some have witnessed the flaring up of latent hyperthyroidism after application of iodized dressings, etc. Another danger from them is the effect on the vocal cords, similar to Cisler's experience with dogs; the vocal cords kept in the cadaver position when their

innervation had been cauterized with silver nitrate. After thyroidectomy the vocal cords are liable to keep in the median position for a long time before they resume normal movements, and any chemicals in the vicinity might exaggerate this.—J. Am. M. Assn.

(THYROID) Exophthalmic goiter and pregnancy (Bocio exoftálmico y embarazo). Peralta Ramos (A.), Rev. Asoc. Méd. Argentina (Buenos Aires), 1919, **31**, 289-309.

The coexistence of the two conditions is rare and in the majority of cases pregnancy does not aggravate the goiter; when such does occur it is necessary to operate.—B. A. H.

(THYROID) Congenital goitre. Peterson (Edward W.), Med. Rec. (N. Y.), 1916, **90**, 789.

A case of congenital goitre is described in which a large adenomatous thyroid was found displaced to the right side of the neck. The removal of the tumor was followed within a short time by tetany, which, however, disappeared after administration of thyroid extract. The extract was employed until the child was four years of age, when its use was discontinued. Mental and physical development remained normal.—I. M.

(THYROID) Goitre and psychoses. Phillips (N. R.), J. Ment. Sci. (Lond.), 1919, **65**, 235-248.

That the role played by goiter in the psychoses is more extended than is indicated, is the theme of Phillips' paper. Of 200 patients examined by him, the actual proportion of goiter was 12 per cent. No less than seventeen of these patients suffered from manicdepressive insanity or from the melancholia of involution, i. e., 70 per cent of the whole number. Of the remaining seven, four were cases of dementia precox and three were cases of paranoia. Phillips believes that those cases show that the nature of the psychosis is, in some degree, determined by the form of the functional disturbance of the thyroid gland, e. g., hyperthyroidism is usually associated with states of excitement, agitation, etc. (manic-depressive insanity), whereas hypothyroidism is more often associated with states of apathy and indifference (dementia precox).—J. Am. M. Ass. 74, 423.

(THYROID PARATHYROID) Concerning the surgical anatomy of the thyroid with special reference to the parathyroid glands. Pool (Eugene) and Falk (Henry K.), Ann. Surg. (Phila.), 1916, **63**, 71-77.

A careful study was made in the human cadaver to determine the anatomical relations of the thyroid and parathyroid glands and the recurrent laryngeal nerve with a special view to learning specifically how much latitude is available in operations upon the thyroid gland. The findings are illustrated by 21 halftone plates. So far as immediate results are concerned, it was determined that a single lobe of the gland can be removed freely and completely, the recurrent laryngeal being sufficiently protected by its capsular sheath. The loss of the two parathyroid glands involved could readily be compensated by those remaining. The possibility would remain, however, that a second surgeon in a subsequent operation might repeat the same procedure upon the other lobe with consequent acute parathyroid deficiency. The authors are acquainted with two cases in which this actually occurred. It is advised, therefore, that in a primary thyroid operation the posterior part of the lobe excised should be left in situ, by way of conserving the parathyroid tissue in that locality.
—R. G. H.

(THYROID) On certain dietary factors to be considered in the treatment of cases of hyperthyroidism. Rosenbloom (Jacob), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1919, **17**, 28.

The writer has obtained clinical evidence that in formulating a diet for patients suffering from hyperthyroidism, two important factors must be considered: first, the diet should contain the minimum amount of protein; and second, foods low in iodine content should be selected.—Quoted.

(THYROID) The surgical treatment of exophthalmic goitre. Rowan (Charles J.), J. Iowa State M. Soc. (Des Moines), 1916, **6**, 199-208.

Rowan believes that while some cases of exophthalmic goiter can best be treated by medical means, the majority are surgical. Proper surgical treatment will cure approximately 70 per cent and greatly improve most of the remainder. Great harm is done when futile medical treatment is prolonged until the patient becomes a poor surgical risk or permanent damage has been done to various organs,—especially the heart. An extremist's attitude toward either method is deplored.—R. G. H.

(THYROID) Concerning the "rickets," so-called, of rabbits from thyroidectomised parents. Rusca (G. L.), La Pedriatria (Naples), 1919, **27**, — (No. 10); Abst., Presse Méd., 1920, **28**, 10.

Claude and Rouillard claimed in 1913 to have observed experimental rickets in young rabbits, the parents of which were

subjected to thyroidectomy. The principal manifestations of the disease were arrest of skeletal development and changes in the muscles, viscera and bones which both microscopically and macroscopically resembled those seen in human rickets. Rusca repeated the experiments, claiming for himself a rigorous technique. The results were completely negative. The author is convinced that these results cannot be ascribed to failure to remove all the thyroid tissue, since in all cases they were consistently negative. It is concluded, therefore, that the results of the previous investigators were merely examples of "spontaneous" rickets such as have been noted by various other observers.—R. G. H.

(THYROID) Congenital thyroid atrophy (Angeborene Schilddrüsenatrophie). Schultze, Deutsche med. Wchnschr. (Berlin and Leipzig), 1916, **42**, 1211.

A clinical report, in which nothing new is given, of a case of partial myxœdema in a mentally and physically retarded girl of 15.—F. S. H.

(THYROID) The non-surgical treatment of Graves' disease—a counter-blast. Scott (T. B.), Practitioner (Lond.), 1918, **100**, 442-450.

The author contends that in Graves' disease we have "a pluriglandular disturbance, not only as to quantity of secretion, but as to quality also, and that this disturbance is in the great majority of cases caused by bacterial poisons from within." He believes that shock, grief and fright are only emergencies stirring up partly latent trouble. "The glandular disturbances act partly by direct action on certain organs, such as the heart, and sympathetic, but chiefly, perhaps, by producing discord in the glandular system of the whole body."

Intestinal antiseptics such as beta-naphthol and salicylate of bismuth are recommended, since there is frequently a gastric or intestinal dyspepsia and often colitis. In addition to these, duodenal extract is said to act "like a charm on duodenal catarrh and on colitis that has not gone too far." The following formula is advised:

Duodenal extract .....grs. 2
Ext. Cannabis Ind.....grs. 1/6

In tablets; one, three times a day, an hour after food.

Parathyroid is also advocated to help control the tremors and other nervous manifestations of the disease.

The observation that thyroid hypofunction ending in a form of myxœdema occurs at the end of a fair number of cases of Graves' disease causes the author strenuously to object to the

surgical removal of any thyroid tissue whatever, since in old age the patient is likely to require all the thyroid he can get. X-ray treatment is also condemned because of probable destruction of thyroid tissue.

"That brilliant craftsman, the thyroidectomist, should become an anachronism, a tradition only of the dark days that are gone; and medicine, strong in physiological and philosophical faith, should resume her peaceful sway."—L. G. K.

(THYROID) Fatality under roentgen treatment of exophthalmic goiter. Secher (K.), Nordiskt Medicinskt Archiv (Stockholm), 1918, **51**, 63-70.

Secher reports the case of a previously healthy woman of 39, who had developed exophthalmic goiter in the course of a year. He gave eight roentgen exposures in two days, each a one-half Sabouraud-Noire dose, with a 2 mm. filter, exposing three fields on the thyroid gland and one on the thymus. The condition became aggravated even during the roentgen treatment, and the condition grew rapidly worse till death the fifth day. He reviews the three cases on record in which roentgen exposures of simple goiter were followed by symptoms of exophthalmic goiter. In Rieder's and Verning's cases the aggravation proved speedily fatal, as in the case here described. (See also Endocrin. **3**, 573.)—J. Am. M. Assn.

(THYROID) Treatment of goiter with injections of phenol, tincture of iodin and glycerin. Sheehan (J. E.) and Newcomb (W. H.), J. Am. M. Assn. (Chgo.), 1920, **74**, 81-82.

In an attempt to produce a local inflammation, which would eventually cause a fibrosis in the gland, these authors injected 80 cases of goiter (55 parenchymatous, 14 exophthalmic, 8 cystic, 2 colloid, and 1 adenomatous) with five drops of equal parts of pure phenol, tincture of iodin, and glycerin, at five days intervals. The number of injections varied from five to fifty-five. They report cures in 76.4% of the parenchymatous goiters, and improvement in 80% of the toxic cases. In the cystic, colloid and adenomatous group they found no improvement.—F. C. P.

(THYROID) Studies on hyperthyroidism. Smith (F. M.), J. Am. M. Assn. (Chgo.), 1919, **73**, 1828-1832.

Thirty men who were convalescing from influenzal pneumonia and showed rapid pulse, enlargement of the thyroid gland, fine tremors of the hands, moist, clammy skin and some of the eye signs usually associated with exophthalmic goiter, were examined to determine, if possible, whether the thyroid gland was the basis of these symptoms. In addition to the usual physical

examination and laboratory work, blood sugar determinations, following the administration of glucose by mouth, were made. The response to epinephrin and the effect of thyroid feeding were also noted.

Seventeen of the cases were diagnosed as simple tachycardia, and seven as irritable heart; none of these cases responded to 5 grain doses of desiccated thyroid, nor gave any evidence of disturbed carbohydrate metabolism. Six cases were finally diagnosed as hyperthyroidism, the diagnosis being based on the response to thyroid feeding, a positive response to epinephrin and a suggestive disturbed carbohydrate metabolism.—F. C. P.

(THYROID ENDOCRINE ORGANS) Angioneurotic edema. Staffieri (D.), Revista Médica del Rosario, 1919, **9**, 293-298.

Staffieri summarizes the prevailing views in regard to Quincke's edema, in the statement that it is characterized by abnormally exaggerated excitability of certain nerves which have control of the secretion and circulation of lymph. This hyperexcitability is almost always constitutional, the result of "dysendocrina" (defective functioning of the endocrine glands), with thyroid insufficiency predominating. This excitability is rendered manifest by influences of different kinds, including some which behave like antigens, inducing anaphylaxis. In the first of his two cases, one side of the throat was affected but there was no inflammation. The young man showed signs of thyroid insufficiency and hypogenitalism, and under thyroid treatment there has been no recurrence of the acute edema of the throat. Atropin and a saline purge relieved the immediate symptoms; it was the first and only attack to date. In the other case there had been fleeting edema at various points during seven years. In this latest attack the face alone was involved, and the edema was so extreme that the eyelids could not be closed. As usual, the edema subsided completely in a few days. The patient was a healthy married woman of 35 with two healthy children and negative Wassermann reaction, and there are no signs of derangement of any of the glands of internal secretion.

—J. Am. M. Assn.

(THYROID THYMUS) Thyroidectomy for vagotonic type of Basedow's disease. Stettin (W.), Med. Rec. (N. Y.), 1916, **89**, 580.

A brief case report. A patient was operated upon for Graves' disease, part of the thyroid being removed. A relapse was experienced. At a second operation another portion of the thyroid was removed, together with a small retrosternal mass which, upon microscopic examination, proved to be atrophic thymus tissue. Recovery was satisfactory.—R. G. H.

(THYROID) The etiology of mongolism (Zur Aetiologie des Mongolismus). Stoeltzer (W.), Münch. med. Wchnschr. (Munich), 1919, **66**, 1493.

The author observed ten children with Mongolian idiocy. No noteworthy features were presented, but in three the mother had complained during pregnancy of a loss of appetite and constipation; she became fat, did not perspire, lost hair and became dull. It is suggested that these cases of mongolism were due to hypofunction of the thyroid of the mother.—J. K.

THYROID treatment, The results of—in nine cases of alopecia areata maligna. Strandberg (J.), Acta Med. Scand., 1919, **52**, 165-175.

Five cases out of 9 showed marked improvement upon administration of thyroid. However, results do not warrant conclusion that the etiology of the disease is found in the disturbances of the endocrine glands.—Chem. Abst.

(THYROID) Method and results of a study of the distribution of iodine between cells and colloid of thyroid glands. Tatum (Arthur L.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1919, **17**, 28.

Method: Use was made of the fact that from frozen sections, as prepared for histological study of fresh, unfixed tissues, the colloid of the thyroid gland completely disappears out of the acini when the sections are floated in physiological salt solution. The sections were picked out by means of a needle, washed in another salt solution, dried at 105° C., weighed and analyzed for iodine by the technique of Kendall. The iodine in the colloid portion was sometimes determined by evaporation of the salt solution—and at other times differentially by analysis of the whole dried gland.

Results: In a series of about 30 experiments on dogs' thyroids the iodine was found in the majority of cases to be wholly in the colloid. In a smaller number the cell mass gave only qualitative tests for iodine, which, at the present stage of this investigation might be considered due to small unopened acini. The physiological significance of these findings is being investigated.—Quoted.

(THYROID) Some blood pressure phenomena in exophthalmic goiter. Taussig (A. E.), Tr. Assn. Am. Physicians (Phila.), 1916, **31**, 121-127.

The blood pressure in exophthalmic goitre shows the same sort of anomalies, but to lesser degree than those seen in aortic

regurgitation. The pulse pressure is high as compared with the diastolic. Both systolic and pulse pressures are higher in the leg than in the arm. Non-toxic goitres, on the other hand, do not give rise to this difference, the pressures in both upper and lower limbs being equal. This differential arm and leg pressure, although characteristic of exophthalmic goitre, is by no means pathognomonic. Identical pressures in arm and leg are regarded, however, as of considerable value in ruling out this type of goitre.—R. G. H.

THYROID and PANCREAS, Giant-cell sarcoma of—(Reus cellensarcom van de schildklier en het pancreas). van Rijssel (E. C.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1919, **63** (ii), 2914.

A pathological-anatomical description of two cases, the first of which was a sarcoma of the thyroid with metastases in the lungs and the second, a sarcoma of the pancreas associated with gastric ulcers. The article contains some good microphotographs, but no clinical details.—J. K.

(THYROID) The "hydro-telluric" theory of Bircher and its application to the regions of endemic goiter in Argentina (La "Teoria hidrotelúrica" de Bircher y su aplicacion a las regiones de bocio endémico en la Argentina). Wernicke (R.), Rev. del Inst. Bact. del Dep. Nacional de Higiene (Buenos Aires), 1919, **2,** 325-332.

The drinking waters from Rosario de Lerma and Chicona (Province de Salta) which are regions very strongly infected with endemic goiter do not have the low surface tension observed in the waters from the endemic regions of Switzerland by Bircher. The geological characters of the goiter regions in the Argentine fail to confirm Bircher's hydrotelluric theory.—B. A. H.

(THYROID AUTONOMIC N. S.) The histopathology of the autonomic system in goiter. Wilson (L. B.), Journal-Lancet (Minneapolis), 1917, **37,** 368-370.

An examination by the above writer of the nerve cells, etc., of the cervical sympathetic in all cases of goiter, revealed various degrees of degeneration. Glandular degeneration was shown in the ganglion cells of cases of exophthalmic goiter. The degree of degeneration always paralleled the intensity of the manifested toxicoses.—J. H. L.

(THYROID) Goiter, considered from the standpoint of the pathologist. Wilson (L. B.), Miss. Valley M. J. (Louisville, Ky.), 1916, **25,** 225-228.

The author divides the pathologic enlargements of goiter into four groups: (1) non-symptomatic or simple goiters, in which the primary parenchymatous hypertrophy and hyperplasia are absent. The enlargement is colloidal in nature and in the belief of the author is caused by a water-borne, chronic infection. (2) The toxic non-exophthalmic, as a rule, are associated with encapsulated adenomas. The differentiation from the pathologic standpoint between the toxic and non-toxic adenomas is not complete. (3) In toxic exophthalmic goiter there is generally found either primary hypertrophy and hyperplasia or both. The additional over-production symptoms are probably due to the irritation of the cervical sympathetic ganglia. (4) Malignant neoplasms of the thyroid are not so common nor so easily recognized. Most cases were originally encapsulated tumors containing small cells with large nuclei.—F. S. C.

(THYROID AUTONOMIC N. S.) Further study of the histopathology of the autonomic nervous system in goiter. Wilson (L. B.), J. Lab. & Clin. Med. (St. Louis), 1916-17, **2,** 295-307.

The following pathological changes were found in the cervical sympathetic ganglia (twenty ganglia) which were removed at operation from sixteen patients with hyperplastic, toxic (exophthalmic) goiter: (1) Definite change in the cells of the ganglion. (2) All showed various changes of degeneration. (3) Degeneration was also shown in some of the nerve fibers. (4) The pathologic changes in the cervical sympathetic ganglia were parallel to the stage and intensity of the symptoms of hyperthyroidism.—J. H. L.

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